

Inside Dope

By GEORGE
F. TAUBENECKLearn to live and laugh —
thus delay your epitaph

Stories of the Week
Well, Fellas, Let's Think
Compressor Temperatures
More Brain Food
Mental Block
Out of Our Mailbag

Stories of the Week

Loquacious Tallulah Bankhead purchased a parrot. After hearing this news someone remarked:

"Around Tallulah that parrot will be as frustrated as a kleptomaniac in a piano store."

There are just two ways to get along with women. Er, does anyone in the crowd know what they are?

Conscience: The still, small voice that tells you what other people should do.—ARNOLD H. GLASOW.

Anybody who's not neurotic these days is probably underprivileged.—FRANKLIN P. JONES.

The trouble is that so many of us are saying, "The trouble is . . ."

Well, Fellas, Let's Think

Personable Frank Versagi, newest member of our editorial staff, delivers these pungent paragraphs to "Dope":

"Recently you discussed breakthroughs in the physical sciences during the last few years, and stressed the point that there seems to be no concerted effort in the air conditioning and refrigeration industry to make use of these breakthroughs."

As a former chemist, Versagi is aware of these advances in the physical sciences. "And I agree with you on your basic premise," he adds.

However, of greater concern to Frank is the mental inertia being shown by the air conditioning and refrigeration industry. Our industry is blameful, Frank feels, not only in failing to study theoretical breakthroughs, but in not accepting new facts which seem to go counter to present ideas.

"The moisture monster is a good example. For years we have warned against its presence in systems, and attempted to set realistic levels to avoid chemical reactions in a unit," Frank notes.

"Recently there have been reports that under certain conditions MOISTURE HAS BEEN FOUND TO BE WITHOUT HARMFUL EFFECT, and under one set of conditions was actu-

(Concluded on Page 8, Col. 1)

**See Upturn In
Store Outlay
For Fixtures****'Business Increase Due'**

CHICAGO—Following a cross-country check of group members, W. H. Crawford, president of National Association of Retail Grocers of the U. S., announced here that the majority of food retailers feel business will increase somewhat in 1958, or at least remain as good as 1957.

There will be an upturn in new store construction as well as in store expansion and modernization, Crawford said, and the outlay for store fixtures and labor-saving equipment of all kinds will be heavy.

Among the food retailers who see a decrease in business, Crawford added, a large percentage expect a change for the better in mid-year. Those who expect to add more equipment will have varied financing sources, but 51% will borrow

(Concluded on Page 25, Col. 5)

Almost \$5 Million Profit**AMC Sales Up
33% In 3 Mos.**

DETROIT—Directors of American Motors Corp. emerged from a board meeting last week with big grins on their faces after learning the corporation had shown a net profit of \$4,948,736 for the fiscal quarter ended Dec. 31.

AMC's first quarterly profit since June 30, 1955 was gained on a sharp jump of 33% in net sales of \$118,598,502 for the three months over the \$88,903,414 of the comparable 1956 period.

Officials pointed out that in mid-November, George Romney, AMC president, estimated a net profit of about \$3 million for the fiscal quarter. Board members were reported "highly pleased" with the "substantial increase" over Romney's prediction.

AMC is the parent company of Kelvinator here.

**The One-Third Rule—How
Far Can It Be Stretched?**

COMMERCIAL DISTRIBUTORS who are puzzled over problems of extending credit to customers may find some valuable advice in the words of Milton I. Schwartz as he discusses "Financing the Store of Tomorrow" starting in the Commercial Section on page 16 of this issue.

**Offers Electronic
Air Cleaner Cut
1/3 In Size, Cost**

MINNEAPOLIS—Minneapolis Honeywell Regulator Co. has introduced a new line of increased-efficiency electronic air cleaners at a 30% reduction in price and a one-third decrease in size of the units.

At the same time the company announced that it has begun manufacture of activated charcoal filters for installation in air conditioning fan systems to remove odors from the air.

A combination of the new electronic air cleaner and charcoal filters will provide a high level of air purity and cleanliness, according to Robert H. Jacobs, Honeywell's electronic air cleaner market sales manager.

He said the system is expected to find wide application in hospitals, hotel meeting rooms,

(Concluded on Page 4, Col. 1)

In Toronto**Set Refrigeration
Show, RSES Confab**

TORONTO, Ont., Can.—Four technical sessions of the Refrigeration Service Engineers Society of Canada will be spotlighted as the group holds its convention concurrently with the 3rd Canadian Refrigeration and Air Conditioning Show here Feb. 10-12.

Held every two years, the exposition will be in new Queen Elizabeth hall in Exhibition Park here, with 54 or more companies showing their products.

RSES sessions will be conducted in the King Edward hotel

(Concluded on Page 25, Col. 3)

BEHIND PAGE ONE . . .**Need for Profits—**

And How To Achieve Them..... 13

Frozen Food Shelving

Manufacturer Sees It as Next Move..... 18

Air Distribution Requirements In

Year-Round Air Conditioning..... 22

Basic Chemistry

Refrigerant Breakdown (Conclusion)..... 24

Servicing Auto Air Conditioners

..... 26

Refrigeration Problems

Sizing Compressor Belts..... 27

Regular Features

Editorial..... 12

Slants on Service..... 23

What's New..... 20

Patents..... 27

Issued every Monday at
450 West Fort St., Detroit 26, Michigan
Established 1926

Member,
Associated
Business
Publications



Member,
Audit
Bureau of
Circulations

**NAHB Looks To Conditioning
To Help Home Building Push
New Cooling Products Offered at Show**

CHICAGO—Despite their financing troubles and the national attention thrust upon them as the "bellwether" industry to lead the country out of its current business slump, home builders attending the National Association of Home Builders convention and exposition here displayed keen interest in what air conditioning and heating equipment manufacturers were doing to make it easier for them to sell houses.

Frigidaire's new slide-in unit for home air conditioning and Philco's new "Citation" appliances to be sold to builders were

demonstrated at a session devoted to the NAHB Research House and what it means for the future of home building. Both the Frigidaire unit and the Philco custom appliances were developed as part of the Research House project.

A highlight of the Philco line is a refrigerator door that can be turned upside down to switch from right hand to left hand opening. The door's "Formica" panel can be changed by removing the handle and snapping another panel into place. Reversible panel fronts are delivered (Concluded on Back Page, Col. 3)

**G-E Has All New
Central System****Lennox System
Is Flexible**

CHICAGO—In a move "to place central heating and air conditioning products for the home abreast of the latest styled appliances," General Electric Co. introduced at the National Home Builders show an entire new line.

In announcing these new products, R. K. Miller, general manager of General Electric's Home Heating and Cooling Dept., stated that the drop off in housing starts for 1957 will be made up during 1958 and that he looks to an increase in the level of 10 to 15% by the end of this year.

In anticipation of this increase, he said General Electric has designed these new heating and cooling units "in order to help the home builder sell more homes." He noted that builders are no longer limiting their application of air conditioning to model homes alone but today

(Concluded on Page 25, Col. 1)

**Can Put Central
Unit-through-Wall****Develops Low
Cost System**

CHICAGO—A new insert-type central home air conditioner that installs through the wall of a house "almost as easily and inexpensively as a room unit" was introduced to the nation's builders by Frigidaire Div. of General Motors here.

Herman F. Lehman, GM vice president and Frigidaire's general manager, who announced the new product, said that although production of the cooling units is scheduled for April, pre-installation components are available now.

He explained that a prototype of the advanced model, which was shown in conjunction with the National Association of Home Builders here, last year was successfully tested in an experimental house designed by the association's research institute (Concluded on Back Page, Col. 1)

The combination indoor climate control package, the Coleman "Solar-Polar Pak," was on display here at the National Association of Home Builders convention.

The completely packaged air conditioning system is designed specifically for two and three-bedroom ranch-style houses, according to the company. The Polar-Solar Pak has three major components—a 100,000 B.t.u. gas furnace, a separate cooling unit, and a prefabricated (Concluded on Page 4, Col. 4)

Pipe Fitters Won't Cross Line**'Instrument Servicemen' Picket M-H Calif. Branch To Get Journeyman Wages; None Has Been Apprentice**

SAN FRANCISCO — Minneapolis-Honeywell Regulator Co.'s San Francisco branch was being picketed by U. A. local union 38 of San Francisco in an effort to get full journeyman wages for eight instrument servicemen.

None of these men has served an apprenticeship, according to company officials. Their training has been "short course" in certain instrument service, troubleshooting, and repair only, it was stated.

The eight instrument men have been picketing M-H since Dec. 23.

Of the eight men, five do commercial air conditioning electrical service work on electrical control devices in completed commercial and industrial build-

ings. They also perform repair work on individual instruments used in the control field. The other three do industrial instrument service work.

The picket line of the instrument men has resulted in pipe fitter members of the same local refusing to work for Minneapolis-Honeywell.

SLOWS BUILDING WORK

Failure of the pipe fitters to report has resulted in a slowdown of M-H construction work in the bay area.

San Francisco branch of M-H regularly employs between four and five full-time journeymen pipe fitters who perform service work on pneumatic systems and instruments.

These fitters are used interchangeably with other journeymen fitters employed by the San Francisco branch of M-H who do installation of pipe and pneumatic equipment. All fitters and instrument men belong to U. A. local 38.

R. C. Cushing, branch manager for M-H, says his office has been scrupulously careful to see all pneumatic work, accepted to be within the jurisdiction of the pipefitters, is performed by them.

PERFORM ELECTRICAL WORK

"The electrical service work, which we do not consider to be within the pipefitters' jurisdiction, is performed by our com-

mercial servicemen," Cushing said.

"If pneumatic work is involved in installation of systems of which instruments are a part, the installation is, of course, performed by our journeymen pipefitters.

"Work performed by our commercial and industrial instrument servicemen does not require the skills of a journeyman pipefitter. Not one of the eight instrument men involved has ever served as an apprentice pipefitter. We do not use them to install pipe or pneumatic equipment and we do not intend to so use them.

"In spite of our belief these men do not have the skills of pipefitters nor perform the work of the pipefitters; we recognize their rights to have local 38, or any other unit, as their bargaining agent and negotiate rates of pay for them justified by their background of skills and the work performed.

"We have met willingly and in good faith with officials of local 38 and offered to negotiate a rate increase for the men involved based on work they do, their skills, and their length of service.

OFFER WAGE RISES

"Our offer is based on a survey of the rates paid men doing comparable electric and electronic service work in the San Francisco area and elsewhere in the country.

"Our offer provides wage increases, but this offer was rejected by officials of local 38 and their consistent position throughout our meetings has been we must immediately pay the journeymen pipefitter scale to the instrument men involved.

"We cannot agree to pay them the scale required for a skilled journeyman fitter who has completed five years of training to acquire the skills of the pipefitting trade.

"We remain ready as always to consider any sound proposal for the instrument men in question," Cushing stated.

Richmond Explosion Rips Cold Storage Warehouse

RICHMOND, Va.—A cloud of ammonia, tinted red by brick dust, billowed over downtown streets here after a mysterious explosion ripped off two massive walls of Merchants Ice & Cold Storage Co. refrigeration building.

Rescue operations for the seven men reported killed and another critically-injured worker were hampered by choking ammonia fumes which escaped from refrigeration pipes and lingered over the area.

M. F. Stufts, manager of the cold storage company, said he had no idea what caused the blast. The ammonia refrigerant used had not been considered explosive.

'AMMONIA NOT THOUGHT EXPLOSIVE'

Chief L. M. Bowman of the fire prevention bureau agreed that ammonia is normally not considered explosive. He said a thorough inspection would be necessary to determine the origin of the blast, though it appeared to be concentrated on the second floor of the building.

Chunks of debris and frozen food were scattered over the entire block where the structure is located. The explosion was confined to the refrigeration section of the building which stretches a block.

Asked to comment on how such an explosion might occur, Charles Imel, a refrigeration engineer who is chairman of the local chapter of American Society of Refrigerating Engineers, said "Ammonia is not considered a dangerous explosive because it so rarely explodes."

WHEN GAS IS FLAMMABLE

He pointed out that the gas is considered flammable or explosive only "in limits of 16-25% volume with air." Volume in that bracket is extremely rare.

Imel said that apparently there was a major leak in an ammonia line, permitting the gas to spray into the atmosphere of a room and become ignited.

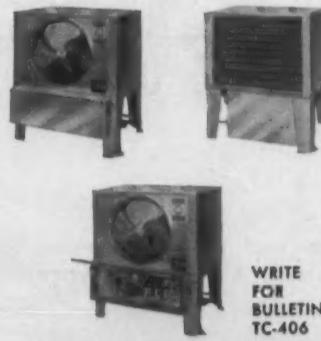


KRAMER

THERMOBANK COMPRESSOR

FACTORY PACKAGED at LOW COST!

Kramer's new THERMOBANK COMPRESSOR overcomes the problems and uncertainties in field assembly of low temperature refrigeration systems. It's the only factory-assembled-and-tested automatic defrost system and includes a hermetic compressor, THERMOBANK re-evaporator and all controls. It arrives on the job ready to operate. Only simple connection to the Kramer evaporator is required and nearly all adjustments are eliminated. THERMOBANK COMPRESSOR uses an extra large air-cooled condenser and a high efficiency low temperature compressor—possible only with THERMOBANK—for maximum capacity at lowest cost. Tamper-proof aluminum case provides easy access to all components and maximum installation adaptability in any unconfined area. Units available on request for outdoor installation are designed for automatic trouble-free operation for any outside temperature.



WRITE
FOR
BULLETIN
TC-406

KRAMER TRENTON CO. • Trenton 5, N.J.

44 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

For more information about products advertised on this page use Information Center, page 20.

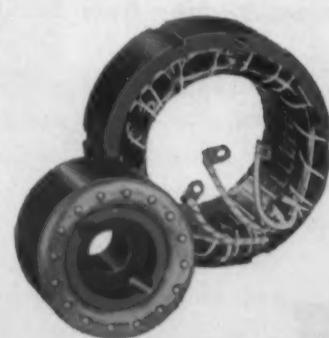


MEET ANOTHER DELCO EXTRA

*He's one of our hermetic motor plant agents
and he stops trouble before it starts*

Here is another Delco extra that doesn't show up on "spec" sheets, but does pay off in customer satisfaction. This Delco Products man is a traveling inspector on hermetic motors—known for his ability to spot customer problems before they are problems. Often, his suggestions have helped customers improve production efficiency and cut costs.

The most important aspect of his job, however, is that he represents an unsurpassed service program that backs up Delco . . . a service program that assures you of on-time delivery and satisfaction in the best hermetic motors it is possible to produce. Why don't you call your nearby Delco Products Sales Office and find out about all the extras that have made Delco motors so popular with so many users!



*Precision made to your
specifications,
Delco Hermetic Motors
are backed by service
you can always count on.*



**DELCO
MOTORS**

Delco Products, Division of General Motors, Dayton, Ohio

• APPLIANCE MOTORS • INDUSTRIAL MOTORS

• GENERATORS • ACTUATORS

• AUTOMOTIVE AND HYDRAULIC EQUIPMENT

• HERMETIC MOTORS AND CONTROLS

• RESIDENTIAL GARAGE DOOR OPERATORS

• AIR SUSPENSION COMPONENTS



For more information about products advertised on this page use Information Center, page 20.

Honeywell Air Cleaner--

(Concluded from Page 1, Col. 3)
restaurants, and schools.

The new electronic air cleaner, known as AC/ME ("Advanced Capacity/Maximum Efficiency"), is available in four models.

"Heart of the new design, the result of a lengthy research and testing program conducted by Honeywell engineers, is a cell that employs a new voltage gradient in the plate section," it was explained.

"Plate spacing has been reduced, which increases efficiency and made it possible for Honeywell engineers to cut down the size of the units by one-third. For instance, a 10,000 c.f.m. electronic air cleaner requires only 20 sq. ft. of space, compared with 30 sq. ft. previously.

"The new cell unit will handle 60% more air at an increased maximum efficiency of 97%.

"List price of the new 10,000 c.f.m. unit (which will remove more than 90% of all dirt particles down to .001 micron in size

is \$3,100, approximately \$750 below the price for the previous model. Comparable price reductions are in effect on the other three models in the new line."

The new electronic air cleaners have been designed to fit into a building's air conditioning fan system without special metal work being required, thus reducing installation costs.

Honeywell's new "Renew-Air Filter" consists of a 2 by 2-ft. filter that contains 45 lbs. of granulated activated coconut-shell charcoal. This material is placed between perforated sheets of steel. This filter "sandwich" is pleated to pro-

vide a large filter area in a small space.

"It is estimated that a pound

of activated charcoal granules contains as many as nine million square feet of tiny pores that trap the odors contained in the air and allow only fresh air to pass through," the announcement said.

Installation of an electronic air cleaner and activated charcoal filters reduced by approximately 25% the amount of outside air needed in an air conditioning system, Jacobs pointed out.

For every 1,000 c.f.m. of hot, humid summer air that is eliminated from the air conditioning system, there is an approximate savings of \$634, Jacobs said. To accomplish this saving, he added, activated charcoal filters are necessary for air purification.

Use of an electronic air cleaner gives activated charcoal filters a longer life by preventing dust particles from penetrating the filter, Jacobs further said.

Coleman 'Polar-Solar Pak'--

(Concluded from Page 1, Col. 5)
the joining of individual runs to the central supply duct.

"Because all parts are stand-

ardized and are sized to fit a particular type of house, installations are simplified and initial cost of the system is reduced through mass production methods," the announcement said.

The Coleman innovation "is applicable to literally millions of small two and three-bedroom houses of a type built in volume in the last 15 years," its inventor contends.

A survey of thousands of these homes convinced Coleman that in most cases a furnace having a rated input of 100,000 B.t.u.h., and a 2-hp. waterless cooling unit were large enough to heat the house in winter and cool it in summer.

Within Reach of Small Home Owner

"By making certain modifications in the cooling unit and engineering a completely standarized air distribution system, we have come up with a package that brings year-round air conditioning within the reach of the small homeowner," declared Sheldon Coleman, president of the company.

There is nothing radically new or different in the components that make up the system, the manufacturer contends.

"Both the furnace and cooling unit are standard appliances proved in thousands of installations," it was pointed out. "The air handling system, too, has had a long testing period. Many of its parts are the same as those used in the Coleman 'Blind-Air' system."

'Answer to Builder Demand'

The trick is in the way the components fit together and balance out, Coleman explained.

Coleman sees the Polar-Solar Pak as "an answer to builder demands for a simple, low-cost year-round air conditioner for small homes." He said that three years ago project builders "specified a packaged system by one manufacturer who would assume responsibility for all components. They asked for a system so designed and packaged that it could be installed by the type of crew generally available for project work and with little possibility of error. Finally, they asked for a system that would be installed in a 1,200 sq. ft. home for under \$1,000.

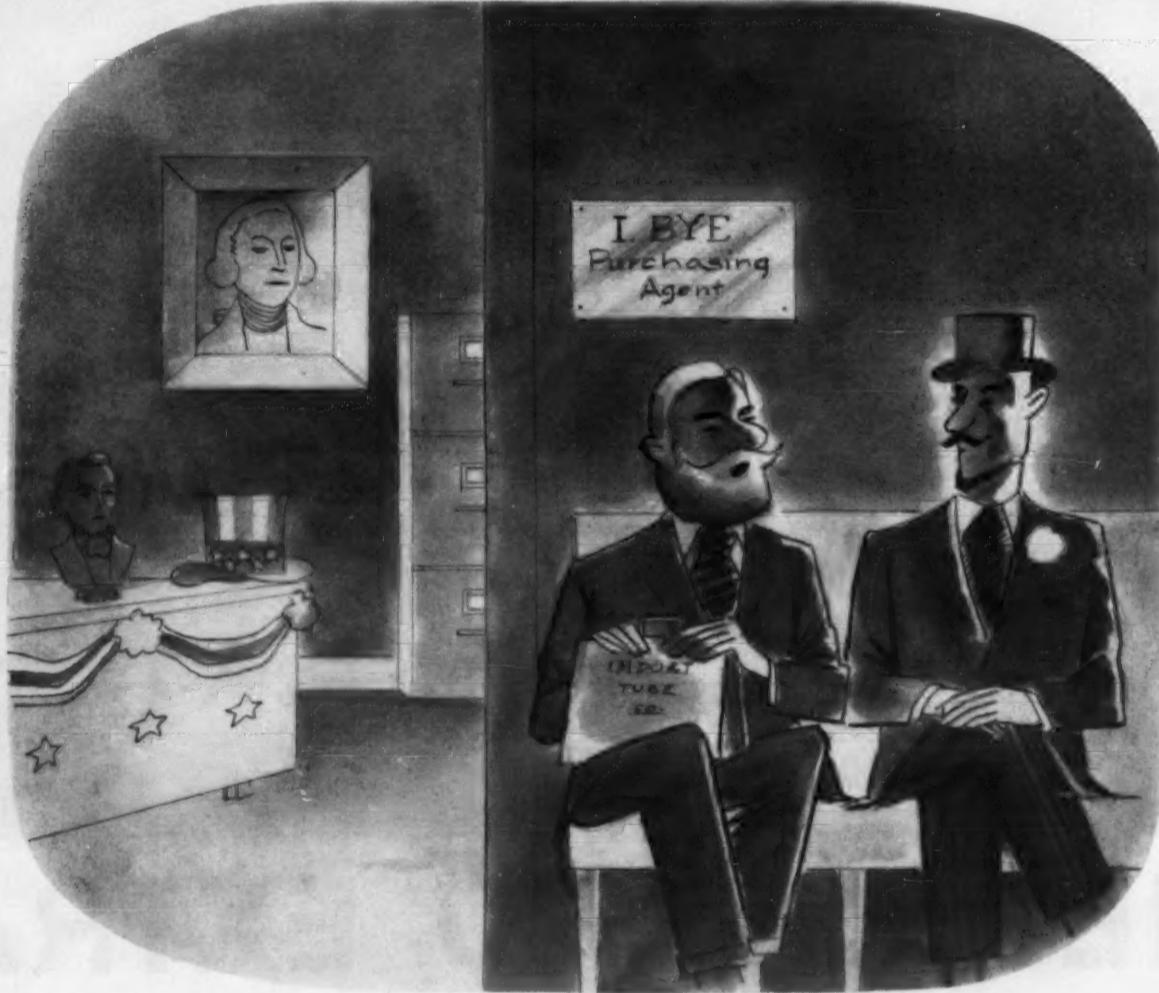
"Today we can give them what they asked for," Coleman added.

The new system will be sold nationally by the manufacturer's authorized heating and air conditioning dealers.

Capital ASRE To Hear Heat Pump Pros, Cons

WASHINGTON, D. C.—Robert M. Matthews, air conditioning engineer for American Gas and Electric Service Corp. of New York, will be guest speaker on "The Pros and Cons of Packaged Heat Pumps" at the Feb. 4 meeting of the National Capital Section of American Society of Refrigerating Engineers.

The meeting will start at 8 p.m. in Potomac Electric Power Co.'s auditorium here.



"Are you sure this is the place that likes to buy all of its parts and tubing from foreign suppliers?"

Patriotism is not the only reason for "buying American". Firms who have made purchases overseas have often found that there is no substitute for the prompt, efficient service only American suppliers can provide. Delays in handling of inquiries, requests for quotations and deliveries, plus the absence of on-the-spot servicing facilities will often more than offset the price advantage that prompts such a purchase.



Expect the BEST

brass and copper
products from

H & H

TUBE AND MANUFACTURING CO.

271 N. Forman Avenue, Detroit 17, Michigan • Offices from Coast to Coast

METALFLO

LOCKSEAM

COIL STRIP

SEAMLESS TUBING

TUBULAR PARTS

For more information about products advertised on this page use Information Center, page 20.

Owens-Corning Plans \$Multi-Million 'Comfort Conditioned Home' Program

TOLEDO — Owens-Corning Fiberglas Corp. has announced a three-year, multi-million dollar "Comfort Conditioned Home" program to help the nation's home builders promote and sell more homes.

"This broad, industry-wide campaign," emphasized Harold Boeschenstein, OCF president, "is the greatest and most comprehensive in our company's history and, we believe, the largest single builder-aid program being undertaken in 1958 by any company in the building industry."

Over 200 of the country's top

Home Improvement Council Plans Homeowner Contests

NEW YORK CITY — Copies of an eight-page Home Improvement Council newspaper supplement, containing articles, pictures, helpful hints on all phases of home improvement and modernization, were distributed to 11,000 newspapers by Publishers' Auxiliary Jan. 25. At the same time, the supplement was sent to all Council members.

The section designed to heighten interest in products and services of the repair-re-model-replace industry, will specifically promote HIC's two \$125,000 homeowners' contests and suggest that consumers obtain entry blanks for the first phase from Council members. Throughout the section, homeowners will be urged to patronize businessmen who display the HIC membership seal in undertaking their home improvement projects.

The supplement is another in HIC's series of aids for local members. Further information and membership applications can be obtained from the Council, 2 East 54th St., New York 22, N. Y.

For Your Reprint Copy

"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Only 25¢ each.

Too old to use blocks?

See the **LENNOX** ad
IN THE FEBRUARY 3 ISSUE
OF THIS MAGAZINE

booklets, and giveaways for Prediction model home visitors.

"For the past several years," Boeschenstein said, "the home building industry has been out-promoted by the more aggressive marketing campaigns of other industries. We believe the Comfort Conditioned Home program, which was developed in cooperation with many key builders, is a major step in meeting such competition.

"By combining the finest of modern marketing techniques with the valuable know-how and strong support of the nation's better builders, we can provide the type of merchandising leadership that is vital to revive today's lagging home building."

Group Changes Name

ST. LOUIS—Heating, Piping & Air Conditioning Contractors, St. Louis Association, has changed the name to Mechanical Contractors Association of St. Louis.

Residential Air Conditioning

Residential Sales In New York Seen Rising over 1957

ucts—packaged air conditioners for which the wholesalers have successfully established themselves as one of the largest in the country of General Electric Air Conditioning Div.," it was stated.

National Electrical Week Observance Set for Feb. 9-15

NEW YORK CITY—Reports from individual companies and local committees indicate that the Feb. 9-15 observance of National Electrical Week this year will considerably exceed, in level of activity and impact, the observance of a year ago.

Already, the national committee has received activity reports from well over 300 companies in the industry, as well as from local and regional N.E.W. committees, describing plans for special educational and sales programs during the Week.

Dealers! Contractors!

GET YOUR SHARE

OF AIR CONDITIONING JOBS IN THE 2 TO 5 TON MARKET

Three new lines of Larkin air conditioning equipment make it possible for any dealer or contractor to sell complete air conditioning systems to the vast residential and commercial market, where 2, 3, or 5 ton capacities will do the job.

The new, compact, and highly efficient units are designed for installation in the plenum of vertical flow furnaces, in the duct work of forced air systems, or in attic or crawl spaces. The dealer or contractor supplies his own brand of compressor, which can be installed in a remote location to keep noise at a minimum. Larkin Zephyrcon air cooled condensers are ideal companions for the new Larkin air conditioners.

Get the facts on these new Larkin units and be ready to get your share of profitable air conditioning business. See your wholesaler, or write direct for Bulletin 1054.

HERE ARE THE FEATURES:

- Available in 2, 3, and 5-ton capacities.
- Equipped with famous Larkin cross-fin coil, staggered copper tubing with aluminum fins. UL approved.
- Evaporator equipped with pressure-type distributor and external equalizer connection.
- Mastic coated drain pan to prevent sweating.
- Pre-punched holes for easy installation.
- Cases of the DAH and DAC are fully insulated and finished in gray enamel.
- The DAH is equipped with centrifugal fan, permanently lubricated motor, & throw-away filters.

LARKIN COILS INC.

519 MEMORIAL DRIVE, S.E., ATLANTA, GEORGIA

Three New Ways to

SAVE WATER

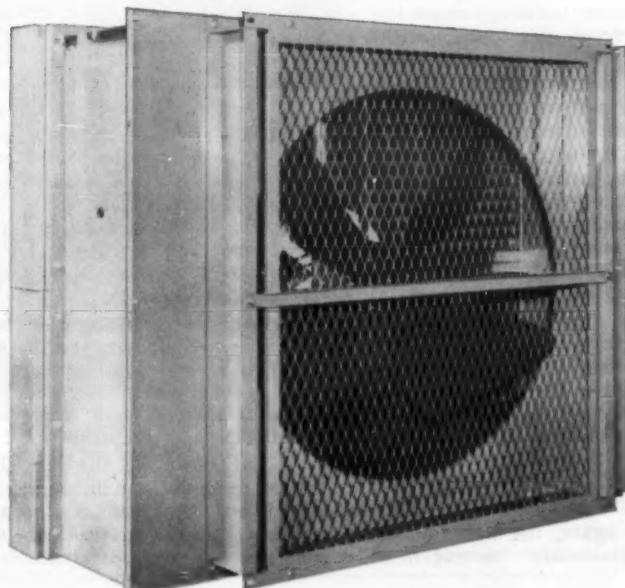
*on air conditioning and
refrigeration systems of
2 to 250 tons capacity
... and larger*

Three new Carrier refrigerant condensers are shown on the page at the right—two of them air cooled and one evaporative cooled. Which will save the most money for your customer? That depends on the job—how big it is, what service it is designed to perform, and the conditions under which it will operate. But whichever you select, each will provide unique advantages. For complete information on these advanced new products and their application to your jobs, call the Carrier dealer listed in your Classified Telephone Directory or write Carrier Corporation, Syracuse, New York.

Carrier

air conditioning • refrigeration • industrial heating

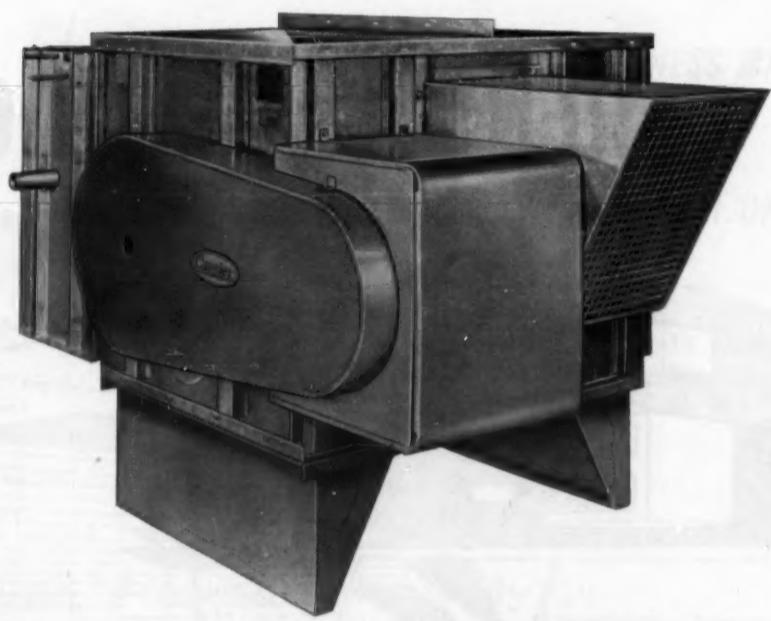
1



Model 9A Air Cooled Condensers for economy, light weight and compactness

Extremely flexible in application. Indoor or outdoor installation. Loads from $7\frac{1}{2}$ tons to 45 tons handled by one of 10 basic sizes available. For larger loads—up to 540 tons—as many as a dozen of the basic units may be combined into a single condensing system with multiple circuits to serve varied air conditioning and refrigeration requirements. Units feature copper coils with aluminum fins, and an aluminum propeller fan housed in an integral aluminum casing. Model 9A units condense Refrigerants 12, 22 and 500 with equal efficiency.

2



Model 9M Air Cooled Condensers for extra quietness or use with ducts

Provide high-capacity performance in limited space because of special coil and centrifugal fan. In seven low-silhouette sizes, with capacities from 2 to 38 tons. Special coil, with 14 aluminum fins per inch of tubing, packs more heat transfer into less space. Quiet centrifugal fan has ample power to draw air through ductwork, makes the 9M ideal for indoor installation for air conditioning. Offers vertical or horizontal air delivery indoors; horizontal only outdoors. Can be floor or ceiling mounted. Condenses Refrigerants 12, 22 and 500.

3



Model 9H Evaporative Condensers for peak efficiency under all conditions

Greatly improved in design, with exclusive new water distribution method that requires no spray nozzles or eliminators. Water is pumped to a pan at top of unit. Orifice holes in pan meter water evenly into a perforated lower pan, which breaks water into droplets that drench coil. Powerful centrifugal fans draw air quietly across coil, provide peak performance in all air conditioning and refrigeration applications. Units are lighter, lower, easier to service. In 13 sizes, 5 to 250 tons capacity. Condense all types of commercial refrigerants.

Inside Dope

By GEORGE
F. TAUBENECK

(Concluded from Page 1, Col. 1)
ally found TO BE BENEFICIAL
IN CLEANING UP A UNIT."

In most of these cases the investigators themselves seem surprised by their findings, and point out that laboratory tests and restricted field tests probably do not duplicate true service conditions.

Obviously there is much we do not know about what goes on inside a refrigerating system. Hence, our industry should not ignore new laboratory findings merely because they seem to go against the grain of preconceived notions.

Compressor Temperatures

"Another example has to do with temperatures inside a compressor," Frank continues. "The important thing, all agree, is the highest temperature to which the refrigerant-oil mixture is subjected—NOT what the temperature is at the discharge port.

"It's axiomatic that temperature at the discharge valve is higher than at the discharge port, but no one knows how much—just a few degrees or very many."

In fact, competent engineers are unable to agree whether hot gas heats the discharge valve while passing through the compressor, or whether the valve heats the gas at that point.

Dr. Rudolph Planck's tests reveal that, due to harmonic vibrations, localized temperatures in the discharge line could be *several times* higher than the discharge port temperature.

Yet, practical engineers in our industry are skeptical that such "theoretical knowledge" could have any practical significance.

"These two examples illustrate the negative and passive type of thinking which must be overcome if the refrigeration industry is to profit, not only by major scientific breakthroughs, but by more immediate information from present investigations," Frank Versagi annotates.

Needed now are some *mental* breakthroughs, obviously.

More Brain Food

A business executive's skill with people, or his lack of it, can be the deciding factor in the long-range future of an engineering organization, an electronic "brain" manufacturer states.

According to Walter W. Finke, president of the Datomatic Div. of Minneapolis-Honeywell, if engineers are chronically frustrated and discontented—the blame in most cases lies at management's door.

"After all, it is we who estab-

lish the ground rules under which they work, and we are responsible for the environment in which they do it."

Acknowledging that this atmosphere is due in part to the "semantic curtain" that falls between professional people and non-scientific businessmen, he recommends "Four R's" of human relations conduct as a framework with which to improve internal corporate relationships.

These Four R's are an awareness of an employee's need for: Recognition, Respect, Responsibility, and Reward.

Mental Block

Although these objectives seem obvious and elementary, management has developed a mental block in this direction, largely because of slavish adherence to myths and folklore about engineers and the so-called "engineering mind."

Chief among these are the methods: better planning and evaluation of work, intelligently applied personnel policies, and recognition of especial personal competency.

"Not so," claims Finke, pointing out that "the pure engineer or scientist with ivory tower complexes is virtually a museum piece in industry."

In his opinion, the current furore over science and research has brought home the point that improvement is needed in the relationships between management and professional people.

Another critical element in this picture is the need to employ scientific and engineering personnel at the highest professional levels. Routine work is depressing to persons who have achieved professional status by reason of personal ability and extended years of study.

Here again, the solution lies in rudimentary management

Out of Our Mailbag

Hussmann Detroiter Inc.

Detroit, Mich.

Editor:

Late Saturday afternoon I stopped at one of my favorite Bistros, to 'ck up a little nourishment and to help fortify my trip home for the day.

This spot is located in the north Livernois Ave. area. As I entered the place a group of women, that predominate in this neighborhood, were just leaving the dining room where they had attended a shower that afternoon for a prospective bride.

As I sat down at the bar, the check room gal was finishing checking out the last of the stragglers from the party. Upon completion of her afternoon

chore of problems with this group, she came over and sat down beside me, and with a sigh, said to the bartender, "Give me a little of that stuff that Lee is using." Then she went on to tell us about her afternoon problems with the "Shower Group."

Seems that one of the gals, upon entering the place, came up to the check room gal and said, "Maybe you have a refrigerator where you can put my fur piece." This sounds like it has a little hair on it—I mean the story, but the check room gal swears it happened.

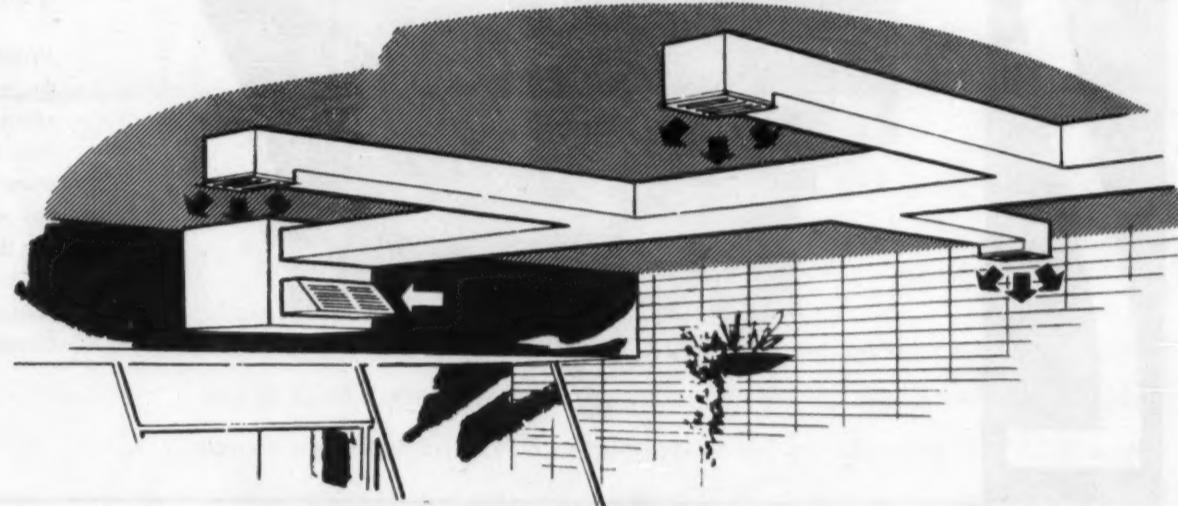
Anyhow, not being one to ever miss a good bet, tomorrow I shall start a terrific campaign to supply all clubs and restaurants with cold storage rooms for "Fur Pieces."

Thought you might use this in your column. If so, I shall expect you to take care of my nourishment one of these late afternoons.

E. L. HAYES

a new volume-builder for

RENT-A-VORNADO PLAN



NO DOWN PAYMENT for small-business customers!

Owners and long term lessees eligible.



SMALL MONTHLY "RENTAL" pays for unit!

Rental payments tax deductible.



VERSATILE Vornado fits every business need!

Broadens your market.

SELL THESE ADVANTAGES TO COMMERCIAL PROSPECTS

STOPS TRAFFIC LOSS! Passersby walk in instead of walking by!

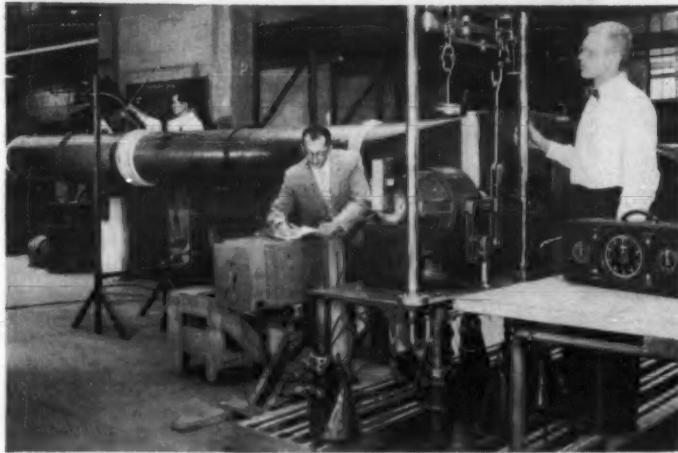
KEEPS CUSTOMERS COMING BACK! "Regulars" appreciate Vornado!

KEEPS THE JUMP ON COMPETITION! An air conditioned store wins new customers!



For more information about products advertised on this page use Information Center, page 20.

OKs Detroit U Test Lab To Certify Air Moving Ratings



FAN testing procedure is shown here at the University of Detroit Test Laboratory—one approved by the Air Moving & Conditioning Association for certification of ratings of air moving equipment. A centrifugal fan is being tested according to the procedure prescribed by the AMCA Standard Test Code. Man at right is checking input horsepower of motor shaft on dynamometer and accurate beam scale. AMCA staff engineer (center) examines results. At left, background, lab chief Y. W. Yamauchi moves pilot tube in test duct to obtain readings for static and velocity pressures and determine air horsepower of the fan.

DETROIT—The test laboratory at the University of Detroit has been approved by the Air Moving & Conditioning Association for certifying performance ratings of air moving equipment.

The U. of D. lab has been engaged in fan testing and research for the past decade. Prof. John J. Uicker, chairman of the university's Mechanical Engineering Dept., is director, assisted by Y. Wilson Yamauchi of the College of Engineering faculty.

As part of its certified ratings program, AMCA is now inspecting scores of test laboratories operated by manufacturers and independent institutions in Canada and the U. S., it was pointed out.

Purpose of the AMCA program, according to spokesmen, is to help equipment specifiers

and users identify air moving products—standardized catalog types of fans and power roof ventilators—which perform according to published performance ratings. Qualifying products will be identified with a seal: "AMCA Certified Rating." Most leading manufacturers are expected to participate in this program, according to AMCA.

Manufacturers interested in qualifying products for AMCA certified ratings at an approved neutral laboratory should contact Air Moving & Conditioning Association, 2159 Guardian Bldg., Detroit 26, Mich.

Hospital Conditioned

COLUMBIA, S. C.—The new center wing of the Columbia hospital, recently opened for patients, is air conditioned year around. A spokesman for the board of trustees and the management of the hospital said it is hoped that the entire hospital can be air conditioned soon.

Air Conditioning

Recold Ups Singer To Product Mgr.

LOS ANGELES—In conjunction with the expansion program under way at Recold Corp., Sherman Singer has been promoted to manager of air conditioning products, announces Dan D. Wile, vice president and chief engineer of Recold.

S. Singer Singer, who has been in charge of Recold's catalog engineering for three years, will continue to handle his duties on catalogs and pricing but will take a more active responsibility in management decisions on air conditioning products, Wile explained.

A graduate of the University of Minnesota with the bachelor of mechanical engineering degree, he is a member of the American Society of Heating & Air-Conditioning Engineers.

Oh, Rats!

White Rodents Thrive In Conditioned Huts

OAKLAND, Calif.—Even a rat does better with air conditioning, reports John Schlemmer, sales manager for General Air Conditioning & Heating Co. here, "Weathertron" distributor.

The owner of a white rat farm near Gilroy, Calif. purchased a 5-ton Weathertron to keep his breeding stock warm in winter and cool in summer.

Now he reports a substantial increase in the number of young white rats who attain an acceptable age to become testing stock for biological research.

Other animals are benefiting from the installation of a 5-ton Weathertron in the Klamath Animal hospital at Klamath Falls, Ore., Schlemmer said.

Vornado® dealers!

- * OPEN UP VAST NEW SMALL-BUSINESS MARKETS!
- * INSTALL ON A RENTAL BASIS
- * MAKE YOUR REGULAR SALES PROFITS--AT ONCE!

Vornado's exciting Rent-A-Vornado Plan now lets you sell Central Air Conditioning to any reputable business with established credit ON A RENTAL BASIS!

BUT... Profit-wise it's just like a regular sale!

Vornado's rental-financing agent pays you off at once!

—and with Vornado's quality...

it's easy to close the deal!

* VORNADO'S ECONOMICAL TO INSTALL!

Fits almost every commercial situation!
Installs through ceiling or through the wall!
Goes in with or without duct work!

* VORNADO'S ECONOMICAL TO OPERATE!

Low-cost operation impresses your customers!

* VORNADO'S ECONOMICAL TO OWN!

Almost ALL retail establishments can afford Vornado Central Air Conditioning!

SEE YOUR VORNADO DISTRIBUTOR FOR FULL DETAILS...or write VORNADO TODAY!

Vornado® Central Air Conditioners

products of The O. A. Sutton Corporation, Inc., Wichita, Kansas

World's leading full line manufacturer of comfort cooling appliances

Distributed in Canada by: Alliance Motors, Schell Avenue, Toronto 10



Glo-Brite Means
Best
Vapor Barrier
Properties



Molded or Fabricated Polystyrene
Refrigerator Insulation
Accurately shaped low temperature
insulation insures cold cabinet efficiency.
Engineered to your needs.

glo-brite PRODUCTS
6415 N. CALIFORNIA AVE.
CHICAGO 45, ILLINOIS
Wire or Phone RO. 1-4045

SEND FOR REPRINTS

Product Knowledge, Protective Maintenance, Trouble-Shooting, Adjustment, Repair of Electric Motors.

Only 40¢ each.

For your copy, clip this ad and mail with name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Lennox Year-Round System Shown--

(Concluded from Page 1)

"heating has been added to an air conditioning machine, instead of adding air conditioning to a heating machine as has been common practice."

The Landmark line includes forced warm air furnaces for gas or oil fuel or electric resistance heating, air conditioners, and combination heating and cooling units. Heating capacities range from 40,956 to 378,000 B.t.u. per hour and cooling capacities from 2 through 10 tons.

Can Add Cooling

"Home or store owners who wish to postpone addition of the cooling function may economically do so by installing an empty cooling coil cabinet and ductwork with the furnace," it was pointed out. "At a later date, the cooling coil may be easily placed in the cabinet."

In the new line, both up-flow and down-flow packages are offered.

The Landmark is said to incorporate many new styling developments. The units may be installed where heating equipment would not normally be placed and is equally suitable for basement recreation areas and closet space.

For reduced height of basement installation, special "Lo-Boy" basement blower-filter section is included in the line.

Can Align Cabinets

The separate cabinets are aligned by centering pins to give the appearance of a single cabinet assembly.

The designer, Waltman Assoc. of Chicago, chose a louvered treatment for the cabinet doors which both enhance the appearance of the equipment and allow necessary ventilation.

A key feature of the Landmark system is a single 13-in. blower for heating and cooling, sized to handle the greater air volumes required for air conditioning, the company said.

"The single blower permits elimination of dampers and accompanying air leakage, reduction of space and straighter air flow," it was stated.

"In cases where a reduced speed is desired for heating,

two-speed controls are offered. Maximum air volumes moved by the blower range from 1,600 to 4,400 c.f.m. The cabinet is lined with 1/2-in. acoustical Fiberglas.

"In the blower's 'Sulky' design, the motor rides a cradle (resembling a race-track sulky) very close to the blower wheel's center of gravity. This further reduces noise and vibration.

"Incorporated in the blower-filter cabinet is a continuous glass fiber filter, which is thrown away as it becomes saturated with dust and dirt."

In the Landmark equipment, heating inputs range from 68,000 to 340,000 B.t.u. per hour with gas and from 91,000 to 378,000 B.t.u. per hour with oil. Electric strip heater sections have maximum capacities ranging from 40,956 to 68,260 B.t.u. per hour.

Gas and oil heating units feature 16-gauge aluminized steel heat exchangers for durability and protection against acid condensation. The heat exchangers are of a new clamshell design.

In the gas sections, stainless steel "ribbon" ports produce even heat on exchanger surfaces, it was stated. Oil sections incorporate a new "Mighty Midget" burner.

Landmark cooling coil sections use single evaporators "to simplify running refrigerant lines," it was explained. "Evaporators are positioned for low air resistance. For additional strength, coil fins are rippled at the outer edge." A diffusing head is optional to replace duct connection when the equipment is installed in conditioned space.

Compressor units for the air conditioning sections are located remotely out-of-doors.

The four basic Landmark cabinet widths, with heating and cooling capacities are:

26 in.—gas inputs 68,000, 102,000, and 136,000 B.t.u.; oil inputs, 119,000 and 140,000 B.t.u.; cooling 2, 3, 3 1/2 tons.

34 in.—gas inputs 102,000, 136,000, and 170,000 B.t.u.; oil inputs, 189,000 B.t.u.; cooling 4-5 tons.

52 in.—gas inputs 136,000, 204,000, and 272,000 B.t.u.; oil inputs, 238,000 and 300,000 B.t.u.; cooling, 7 1/2 tons.

68 in.—gas inputs 204,000, 272,000, and 340,000 B.t.u.; oil inputs, 378,000 B.t.u.; cooling, 10 tons.

All cabinets are 28 1/8 in. in depth, with the exception of the special lo-boy basement model, which is 42 in. deep.

Heights of equipment packages are:

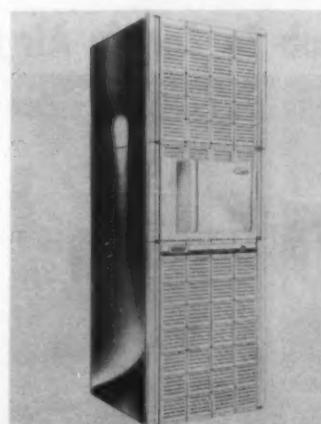
Forced air furnaces—Up-Flo, 54% in.; Down-Flo, 63% in.; Basement Lo-Boy, 47 in.

Year-round air conditioners—Up-Flo, 78 1/4 in.; Down-Flo, 82 1/4 in.; Basement Lo-Boy, 71 1/4 in.

Blower powered cooling coils—Up-Flo, 59% in.; Down-Flo, 54% in.; Store package (with diffusing head), 88 1/4 in.

Included in the Landmark line is a new heat pump. In the heat pump's indoor unit, extra coil is used for the heating cycle to guard against overloading and overheating in mild weather. During the cooling cycle, a portion of this coil is automatically cut off. The compressor is located out of doors.

Dimensions of the heat pump's inside unit are the same as the air conditioners, with the exception of height, which is 69 1/4 in. including the blower-filter unit.



ALL-SEASON Lennox "Landmark Up-Flo" air conditioner with oil-fired furnace.

Celebrate with SCOTSMAN



How would **YOU** put these **BLOCKS** together?

SC DG
LO MB
HI KI
LENNOX
See the big announcement in the February 3 issue of this magazine.

At Notre Dame

Frozen Food Storage
Ups Dining Facilities

SOUTH BEND, Ind.—Due to its rapidly increasing enrollment, the University of Notre Dame found its dining facilities severely overtaxed.

The first step in remedying this situation was the recently-completed new dining hall which will accommodate 1,500 students at one sitting. A vital factor in the new facilities is a tremendously expanded capacity for frozen foods.

A large new freezer, together with six small coolers (for salads, meats, etc.) now enables the storage of a large quantity of frozen foods.

In constructing the freezer and coolers, the university used about 250,000 board feet of a cellular glass insulation ("FOAMGLAS"—a product of

Pittsburgh Corning Corp.). Multiple layers of the material were used in varying thicknesses ranging from 4 in. to 10 in. Interior finish was glazed tile throughout, and the ceiling of metal pan construction.

Market Features 176-Ft.
Frozen Food Section

PITTSBURGH—A new 33,000-sq. ft. supermarket featuring a 176-ft. long frozen food section was opened in Northern Lights Shoppers City here recently.

Fully air conditioned, the 13th and largest Star Market also has a fresh seafood section, "daylight" lighting.

Firm Moves

CLEVELAND—Baird-Foerst Corp., heating and air conditioning equipment and appliance distributor here, recently moved to new quarters five times the size of the old ones. New address is 13835 Enterprise Ave.

'Don't Let Banker Discourage You'

Urges Well-Qualified Market To Finance New Equipment,
'Distributor Should Advise Use of Mfrs. Financing Plan'

SOUTH BEND, Ind.—Five Stores, and Retail Commercial Distribution" the final day, followed by Joseph G. Foy, general manager, Spartan Stores, Inc., who covered "Wholesale Grocers Today." Terry Brennan, Notre Dame's head football coach, was guest speaker that evening prior to a program of entertainment.

L. V. Eberhard, president and general manager of Eberhard Foods, Inc., spoke on "Today's Supermarket" the second day. Dinner talk that evening was given by George F. Taubeneck, editor and publisher of AIR CONDITIONING & REFRIGERATION NEWS. Taubeneck's topic was "Opportunities in Retail Commercial Refrigeration for Young Men."

Thomas O. McDavid, vice president of Commercial Credit Corp., discussed "Financing Commercial Sales, Complete

FSE Equipment Today" was discussed by Art Curran at 3:30 Monday afternoon, followed by a Tyler agent panel covering "Retail Sales and Sales Opportunities Today."

"Improving Merchandising and Equipment Allocation in Today's Retail Food Stores" was detailed by John Hassell and then R. L. Greene discussed "Today's Need for Complete Services." Following dinner and Taubeneck's speech, there was an informal discussion for Tyler distributors on sales planning, advertising and sales promotion, service and installation, management, and finance.

On Tuesday, Jan. 14, Bob Burbank of Progressive Grocer explained the "Super Valu Study." Product comparisons were made by Paul Jackel before R. L. Tyler, Jr. covered new products and Doyle Carpenter HRS equipment.

R. L. Greene and Ed Schild discussed shelving later that morning. Then Art Perez spoke on high sides, introduced "Thermoguard," and Al Hinkley discussed "Keys to Profit."

Store Planning

Art Curran covered "Store Planning and Store Planning Aids" that afternoon and Joe Hennion outlined "Sales Promotion and Advertising." R. L. Tyler gave a summary and closing remarks.

Some points made by Hassell, head of Kroger Co.'s equipment division, indicated that he believes in the next few years there will not be as many supermarkets opened in new locations as in the past several years. He thinks relocations of older and poorly located outlets will equal or surpass new location placements.

He said he is not sold on shopping centers as they are now set up. The day will come when a shopping center will be under one roof, Hassell believes, probably under single supervision.

"In some cases," he added, "shopping center promoters are taking advantage of tenants." He refused to elaborate.

Kroger depreciates its store equipment in eight years, the chain executive continued.

In his remarks, Tom McDavid advised distributors not to allow an ultra-conservative local bank to discourage a well-qualified supermarket operator from financing new equipment.

He termed it imprudent for an operation to wait until 50 to 75% of the cost of the equipment is gathered before buying. It is the distributor's position, in his opinion, to advise and urge such operators to use the manufacturer's financing facilities for such equipment.

Has Money Available

McDavid said Commercial Credit currently has about \$125 million available for equipment financing. Consequently he is of the opinion that any talk about money being tight for equipment financing is inaccurate. He implied that it is more an attitude that creates tight money rather than the actual lack of it for financing.

SELL THE

Golden 50
LINE OF
ICE MACHINES

LIFT A TOAST to greater profits in 1958! Now you can sell the greatest line of ice machines ever offered in the industry! Scotsman—the industry leader—now has 50 models for you to offer. Here's your golden opportunity to sell every prospect who uses ice . . . more sales and profits for you!



YOU'LL CASH IN with Scotsman Super Flakers! Crushed ice by the scoop or by the ton! Scotsman Super Flakers produce the best—small, hard particles of ice that fit every need. There are 24 Scotsman machines to offer your customer. He'll get the right capacity when he picks a Scotsman. You'll ring up more sales, quicker and easier!



YOU'LL CASH IN with Scotsman Super Cubers! There are 8 models with capacities up to 500 pounds per day. If your prospect uses ice cubes, he needs a Scotsman machine. These Super Cubers make the big, round, solid cube—famous wherever beverages are served!



THERE ARE ADDED PROFITS, too, in the Super Bins and Drink Dispensers! They round out the finest line of ice machines you can sell. A wide range of Scotsman Super Bins hold up to 1500 pounds. You'll find that the new combination Drink Dispenser and Ice Machine opens new profit markets for you, too!

Why not celebrate at Scotsman's Profit Party? Apply today for your golden ticket—the valuable Scotsman dealer franchise!

Send me complete information about a dealer franchise for Scotsman Ice Machines.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Mail to: SCOTSMAN—Queen Products, Inc., 201 Front St., Albert Lea, Minn.
Subsidiary of KING-SEELEY Corporation



Scotsman now offers you 50 models—the most complete line of ice machines in the industry. These Super Cubers, Super Flakers, Drink Dispensers and Super Bins provide numerous profit opportunities. As a Scotsman dealer, you share in golden profits from the finest line of ice machines ever produced!

Trade Mark
reg. U. S. Pat.
Office;
Est. 1926

AIR CONDITIONING & REFRIGERATION NEWS

Copyright
1958,
Business News
Publishing Co.

F. M. COCKRELL, Founder

The Conscience of the Industry

Published Every Monday by BUSINESS NEWS PUBLISHING CO., 450 W. Fort St., Detroit 26, Mich. Telephone Woodward 2-0924. Subscription Rates: U. S. and Possessions and Canada: \$6.00 per year; 2 years, \$9.00; 3 years, \$12.00. All other countries: \$10 per year. Single copy price, 40 cents. Ten or more copies, 30 cents; 50 or more copies, 20 cents each. Send remittance with order.

EDITOR & PUBLISHER,
George F. Taubeneck

EDITORIAL DIRECTOR,
Phil B. Redeker

ASSOCIATE EDITOR,
C. Dale Mericle

ASSISTANT EDITORS:
John Sweet
Hugh Maher
George Hanning
Robert Lacey

TECHNICAL EDITOR, Frank Versagi
STATISTICAL EDITOR, John MacLean

GEN. MGR., Warren Jones
GEN. PROD. MGR., Walter Schuler
ADV. PROD. MGR., A. M. Barrow
CIRCULATION MGR., Herbert Spencer
SUBSCRIPTION MGR., Rosalie Ashley
READER'S SERVICE MGR.,
Vincine Mogyorodi

PRESIDENT, Edward L. Henderson

ADV. MGR., Robert M. Price

WESTERN ADV. MGR.,
Allen Schildhamer

ASST. ADV. MGR., Joe Sullivan

ADVERTISING REPRESENTATIVES:
Rex Smith
Frank Taylor

ADVERTISING OFFICES:
New York, 521 Fifth Ave.
MURRAY Hill 2-1928-9
Robert M. Price
Frank Taylor
134 S. LaSalle St.
FRANKLIN 2-8993
Allen Schildhamer
Rex Smith
Detroit, 450 W. Fort St.
WOODWARD 2-0924
Joe Sullivan
Los Angeles, 4710 Crenshaw Blvd.
AXminster 2-9501
Justin Hannon

Member. Audit Bureau of Circulations. Member. Associated Business Publications.

VOLUME 83, NO. 4, SERIAL NO. 1,505, JANUARY 27, 1958

"The greatest dangers to liberty lurk in insidious encroachment by men of zeal, well meaning, but without understanding. Experience should teach us to be most on our guard to protect our liberty when the Government's purposes are beneficial."—Supreme Court Justice Brandeis.

Do Dealers Read You Loud And Clear, Mr. Manufacturer?

FIRST TIME in a long time air conditioning and refrigeration product sales didn't come up to expectations last season. Manufacturers of "original equipment," in consequence, are groping and grasping exasperatedly today for additional competent contractors and dealers who know (or are willing to learn) *how to sell*.

Perhaps a bit of soul-searching will bring to light a prime cause for this distribution dilemma. Maybe, when it comes to the persuasive art of getting dealers to sell, or recruiting those who *can* sell, some manufacturers haven't been communicating adequately with their present or prospective local outlets.

COMMUNICATION is the "flow of intelligence from a mind which has something to transmit into another which is capable of understanding the message," defines Prof. Bogalarb.

The communication process, he adds, can be broken down into four simple elements: a skilled communicator, a pregnant message, a recipient who is in a mood to listen, and "personal magnetism, which sometimes makes the other three elements unnecessary."

For this process to work effectively certain personal relationships must prevail. The communicator not only must be well-informed on his subject, but "be blessed with an aura of believability." Along with that, the recipient must be able to understand, ready to pay attention, and capable of responding.

A communicator who can bridge the gap between a corporate message (advertisement or sales talk) and listeners or readers is a pearl without price," adds Prof. Bogalarb.

To inform, stimulate thought, persuade, or induce hoped-for response, the communicator has to be a salesman, primarily. Human psychology permeates all elements of the communication process, and *salesmen are the practical utilizers of personal psychology*.

Prime pitfall for writers, speakers, and salesmen—in this connection—is relying only on methods and logic. When they're pre-occupied with writing or speaking *techniques*, sometimes they lose sight of their primary purpose, which is *persuasion*.

Then the listener or reader wanders away and astray.

People tend to react emotionally, rather than logically. Many of us, for example, are

so wrapped up in our own business enterprises that we assume (perhaps presume is the better word) that others are equally interested. Bad guess, that—and a wrong way to communicate.

Quite in contrast to fond hopes of too many sales managers, the prospect likely is preoccupied with his own problems. He is busy, has set habit patterns, is stubborn about making a change, and is a normally difficult human being.

Each individual has his own peculiar way of doing things or reacting. Instance:

Mr. Dealer-Contractor hopes that a communicator from the Home Office will have the forethought and courtesy to make his spiel short and to the point. Seldom happens. So the retailer loses sales while he listens overlong to an eager-beaver salesman.

Contrariwise, the manufacturers' representative who talks about the retailer's problems, who offers useful information, provides alternatives, and suggests practical courses of action, is the salesman from whom a local merchandiser likes to buy.

Facts collected to prove a particular viewpoint, or quoted out of context, can boomerang. Bias removal and fact checking on the part of prospects often discredit expensive "research surveys."

Appraise your audience or prospect as to mutual problems and interest areas, depth of subject matter comprehension, and ability to respond as expected.

If your message is sound and well-oriented, your prospect should react favorably. Why doesn't he always? Personal attitudes explain such illogical intransigence. Seems that the guy likes another salesman better.

So, if logic doesn't work, or if personal friendship already hasn't established an intimate connection between you and the man you deal with, enlist the aid of a medium (like a respected trade paper) he trusts—especially when competitive claims tend to cancel out one another.

To combine logic with emotion when dealing with dealers, trusted friendship is ultra-important.

All selling is *personal*. NB: Advertising copywriters who address "the trade" please note well. And please remember also that a trade publication to which readers are LOYAL gives your "message" not only an "aura of believability," but the PLUS of earned friendship.

OFF THE CHEST

HOW FAR WILL MANUFACTURERS GO TO GET VOLUME?

M. J. Blons & Co.
Chicago 16, Ill.

Editor:

Reference:

Editorial: "Is the Industry Pricing Itself Out of Future Business?"

G-E's President Ralph Cordeiro appears to have some incorrect information.

While our business is GOOD DRINKING WATER EQUIPMENT . . . which represents a small percentage of Refrigeration production . . . the same schemes, procedure, and overall sales promotional tactics prevail as it has and does with air conditioning.

How unfair and how far will manufacturers go to obtain volume . . . when this is answered you will get your answer as to the pricing question.

New dealers and distributors naturally are sought out . . .

and because of their inexperience are made to believe by the key-representatives of the manufacturers — enormous profits are being made by those of us that have been successful 20 years and over.

If you are further interested in evidence to substantiate these facts the writer will be glad to supply you with concrete examples.

M. J. BLONS

IT'S THE GREATEST?

Pleasant Aire
Los Angeles, Calif.

Editor:

Got this from the Handsome Horsethief in L. A. County—Dick Dawson.

"The greatest thing that ever came out of Texas:—Highway 66!"

CLAUDE RAAB

Handy Way to Subscribe

To See the Industry In Action EVERY WEEK

Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on commercial and residential air conditioning, heating, commercial and home refrigeration; manufacturing, contracting, distributing, retailing, and servicing. Read the Industry's newspaper for profit every week. Only \$6.00 per year, 52 issues (U.S. and Canada). Foreign: \$10.00 per year.

AIR CONDITIONING & REFRIGERATION NEWS 1-27-58
450 W. Fort St., Detroit 26, Mich.

Send the NEWS every week for: One Year \$6. Three Years \$12.
 Payment Enclosed Bill Me Bill Company

Name.....

Company.....

Street.....

City..... Zone..... State.....

IMPORTANT: Company's Type of Business

Need for Profits and How To Achieve Them Stressed In Typhoon Distributor Meeting

ST. LOUIS—Profitable sales of air conditioning in 1958 will require close attention to all phases of management, it was emphasized in the annual regional meeting for Typhoon distributors held here Jan. 6 and 7.

Management Clinic

Instead of the typical sales meeting, distributors participated in a two-day management clinic under the direction of John A. Gilbreath, vice president of sales; Norman A. Mendes, assistant advertising manager, and Larry D. Spence, midwest regional manager.

First day was devoted to general talks on management and sales by three outside speakers—Charles L. Lapp and Carl A. Dauten, professors at Washington university, and Roger Birkman, industrial psychologist. In a "workshop" session the second day distributors attacked specific problems.

'Business Prospects Look Pretty Good'

Business prospects for 1958 look pretty good, distributors were assured by Dauten, professor of finance, who declared that "the bottom hasn't dropped out." He sees no indication that it will "unless we lose all confidence."

A slight increase in "gross national product" in 1958 was predicted by Dauten, who cautioned, however, that consumers will probably spend a little less on durable goods and more on non-durables and services this year to feed and clothe all those children who have swelled the population.

"Undoubtedly there will be liquidation of inventory in the first quarter," he also said, but he pointed out that the estimated excess inventory of \$2 billion is but a small fraction of the total \$100 billion normal inventory.

New home construction will probably reach 1.1 million this year, according to Dauten, who believes this rate will continue until 1960 and then zoom as the

wartime crop of babies matures and starts forming new families. Many aspects of management and sales planning, including especially apartment houses, is rising now, he said.

'Make Forecasts'

Each distributor was urged by Dauten to make similar forecasts for his own area and firm.

"It has to be done in a business and it is being done whether it's recognized as such or not," he said.

These should be set up for specific markets and products a year in advance and reviewed each quarter or every month, and the distributor should have a long-range plan as well which should be tied in with expected

market potentials, sales planning, advertising, recruiting, selection, and training of salesmen, etc., were touched upon by Lapp, professor of marketing.

Typhoon distributors were urged by Lapp to develop every market they possibly can because diversification would offer greater stability.

"If you over-specialize, you'll be subject to the vagaries of that market," he warned.

Fundamental objective of all their business activity, Lapp reminded the distributors, was net profit, and this objective must be kept in mind in all phases of

business management such as selection of line and product, advertising, sales strategy, and the workings of the sales force.

Need for consistent advertising was stressed by Lapp, who told the distributors they can expect a relatively high cost the first year due to poor returns. In the second and following years greater returns will result from consistent advertising, he declared.

Considerable emphasis was placed on recruiting and training of salesmen, and Lapp urged that distributors formulate a job description so they'll know better, and so will the salesmen, exactly what is expected.

Possibility of hiring older men, even over 50, as salesmen was a specific suggestion offered by Lapp, who said that such men may work more effectively and stay on the job much longer than a younger man.

Even after the "right man"

has been hired, he must be properly trained as a salesman, for a salesman is developed, not born, Lapp emphasized.

In connection with the selection and training of salesmen, as well as other employes, Birkman, the psychologist, told distributors that probably 30% of the failures are due to improper selection but 70% result from poor supervision.

'Have To Develop Personnel Yourself'

All too many employers and supervisors fail to tap the enormous potential that lies in every human being, Birkman declared, pointing out also that "the person exactly right for a job is hard to find today due to the shortage, so the employer has to develop that man."

Although psychological tests are not the final and only answer in selecting employees, they provide helpful clues.

SO HALSTEAD & MITCHELL WHOLESALERS SAID...

"TURBU-FLO AIR-COOLED CONDENSERS SELL FASTER"



Type ACR—Residential Air-Cooled Condenser



Turbu-Flo Air-Cooled Condensers are profitable to handle, just as H&M products have always been. Halstead & Mitchell has always had that *something extra* that can be sold—Turbu-Flo Air-Cooled Condensers; Cooling Towers with a 20-Year Guarantee on the wetted deck surfaces against rotting or fungus damage; Cleanable Water-Cooled Condensers.

H&M Air-Cooled Condensers are available in a wide range of capacities for all air conditioning and refrigeration applications. Wide fin spacing, exclusive Turbu-Flo fins, sturdy, rattle-proof construction assure constant high capacity and lowest operating and maintenance costs.

Find out for yourself why Halstead & Mitchell is the best line to handle. More information is yours for the asking. *Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pennsylvania.*

MAIL THIS COUPON FOR MORE INFORMATION

HALSTEAD & MITCHELL, Bessemer Building, Pittsburgh 22, Pa.

Please send more information on H&M Turbu-Flo Air-Cooled Condensers.

AC-101 "Commercial" ACR-100 "Residential"

I am a: Wholesaler Contractor

Name _____

Company _____

Street _____

City _____

Zone _____

State _____

Halstead & Mitchell



For more information about products advertised on this page use Information Center, page 20.



Chart your progress for
sales from now on

BLUEPRINT for

In Residential Heating and Cooling...
In Commercial, Industrial
Air Conditioning ★ ★ ★ ★ ★ ★ ★ ★

★ **GENERAL ELECTRIC HAS A PROFIT PLAN**

This is going to be the BIG year for dealers of General Electric Air Conditioning Division products. It's going to be the year that G-E Dealers move way out front in sales and profits—because General Electric offers its dealers a **BLUEPRINT FOR LEADERSHIP** that's designed to do just one thing: show air conditioning and heating dealers how to sell and install *more products than ever before!*

This Plan is built around the selling power of the

General Electric name—and the quality and wide variety of General Electric products. It includes a course in selling, General Electric's attractive financing plans, hard hitting advertising and sales promotion, and guided local advertising. If you don't have a General Electric franchise, now's the time to get one. Contact your nearest General Electric Distributor or mail coupon today. General Electric Co., Air Conditioning Division, 5 Lawrence Street, Bloomfield, N. J.

In Canada, Canadian General Electric Co., Ltd., Montreal

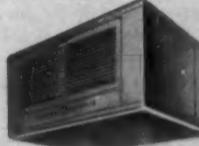
Progress Is Our Most Important Product

GENERAL  **ELECTRIC**

bigger air conditioning with GENERAL ELECTRIC

LEADERSHIP

General Electric Offers a Complete Line of Heating and Cooling Units for Homes, Offices, Stores and Factories



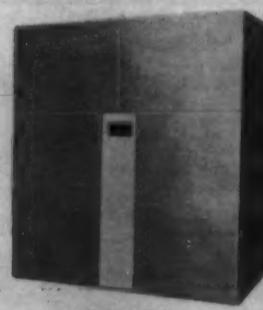
Air-Cooled Split Systems



Year-Round
Air Conditioners



3-Ton Unit



30-Ton Unit



Weathertron
all-electric heat pumps



T C Packaged
Cooling Unit



Ceiling-Mounted, Self-Contained Air Conditioners
Water-Cooled,



Air-Cooled,

ACD 1

**General Electric Co., Air Conditioning Division
5 Lawrence St., Bloomfield, N. J.
Attention Mr. H. N. McMenimen**

I am interested in signing up with General Electric so that I can benefit from G.E.'s Blueprint for Leadership Plan.

I am interested in residential heating and cooling
I am interested in commercial and industrial air conditioning
I am interested in both

NAME _____ FIRM _____
ADDRESS _____ CITY _____ ZONE _____ STATE _____

What's Going On in Commercial Refrigeration

News of Markets, Products, Methods

Financing the Store of Tomorrow: (Part I) How Far Can Commercial Refrigeration Dealer Stretch the One-Third Rule and Remain Solvent Today?

How can the commercial refrigeration distributor finance the store of tomorrow and still stay in business?

How far can he stretch the one-third rule for extending credit to customers and remain solvent?

Why should he look upon the finance charges his customer pays as "his money?"

Milton I. Schwartz, executive vice president of S. & M. Schwartz & Co., New York City commercial refrigeration distributorship, offered some stimulating answers to these questions at the recent convention of the National Commercial Refrigerator Sales Association in Chicago.

So thought-provoking did his talk prove to be on a subject of urgent interest to every distributor that we are publishing it in two instalments in order to present it in full.

Financing the store of tomorrow with the money market of today is a lot more difficult than it was in recent years. Still, the so-called "tight money market" in my opinion, while it may reduce some sales, may, in the long run tend to operate for the benefit of the refrigeration distributor, rather than to his detriment. Some people not entitled to credit in the first place won't get it.

The quick rule-of-thumb guide that we use in extending credit is the one-third rule. We know that if we would keep to that rule in every single instance, we would never get hurt. However, while we know what is right, we don't *always* benefit from our own knowledge.

The one-third rule is this.—Assuming the deal is sold for \$100.00, there should be a one-third gross profit on sales. Should the man go bankrupt the day after the equipment is installed, the equipment should be worth one-third of sales price to us, as fixture dealers. The down payment should be one-third of the sales price, and finance, two-thirds of it.

In that way we cannot get hurt. However, let's see how far we can stretch from the one-third rule and still stay in business.

Who Is Entitled To Credit?

Who is entitled to credit?

A corporation, partnership, limited partnership, or individual who has *experience* in the type of business you are equipping him for. He is going into a store that you and your staff consider a likely successful spot, who has invested and is willing to risk without the ruse of a new corporation, at least as much money as you are investing, and has experience as a prompt payer of obligations in the past.

How far can we go, and on what?

We have a rather complicated break-down on this sort of thing. However, on contracting work for instance, we will assist the customer in getting some financing through our subcontractors, and his own bank by guaranteeing his loan to the bank up to one-third of the amount of the sale. As you notice, we are going back to the one-third rule.

We are always willing to risk our profit on a deal, and rarely willing to risk our capital.

If we do the contracting such as electric, plumbing, painting, and store front, we will arrange for the financing through a bank and get on the paper to the tune of one-third of the deal. Usually the bank will then look at this type of loan with a different eye.

Nothing-Down Deals Appear To Be Myth

As far as the fixture work is concerned, we will go down in some instances as low as 20% down. I hear about nothing down deals, and 10% down deals throughout the country, but it is to my experience just hearsay.

Whenever I try to track these deals down it is always that "they heard the other fellow made such-and-such a deal." I can never track the deal down to the fellow in question.

It is just poppycock that any deal can be handled on a no down payment basis, in my opinion, unless you are dealing with an AA-1 Company, and they won't request it.

If a deal should be handled on a no down payment basis, the man who did it won't handle many deals like that during that particular year. His bank, or financing institute will just not allow him to continue that kind of a business arrangement.

As I said, we will very often go down to 25% down payment
(Concluded on next page)

* HIGH LEVEL REFRIGERATION * AUTOMATIC DEFROST * EXTRA-HEAVY-DUTY COILING

a few of the TYLER ADVANCED DESIGN achievements that make possible this

SEE-MORE EASIER-REACH DISPLAY



(Above). New Tyler Sell More Super Deluxe Shopping Cart (patents pending). Exclusive lower tray slides out for fast, easy, rear unloading at checkout. Extra-large capacity for oversize bulk items.

Better, lower-cost refrigeration! Faster turnover, greater impulse purchases, bigger profits! No wonder more and more leading food merchandisers are making the big, store-wide switch to Tyler 33" no-glass, open-front Sales-Cases. Ask about the many Tyler-pioneered innovations that help food store operators SELL MORE and SAVE MORE!



Impulse sales shoot up with appealing display—quick product identification—easy reach to every part of display. Customer sees more, sooner—and better, with Tyler 33" no-glass, open-front Sales-Cases. They provide full, direct, uninterrupted view of merchandise—make packages easier to see, easier to read!

30th YEAR
TYLER

PIONEER of important improvements

TYLER REFRIGERATION CORPORATION, Niles, Mich.
Canada: Tyler Refrigerators, 732 Spadina Avenue, Toronto, Ontario. (Export: Tyler Refrigeration International, C.A., Apartado Postal 9262, Caracas, Venezuela, S.Amer.)



Tyler Refrigeration Corporation, Dept. A.R.-2, Niles, Michigan
Rush latest data on new Tyler Sales-Cases □ Rolling-Cold Packaging Conveyors □ Walk-In Coolers □ Storage Freezers □ Reach-In Refrigerators □ Service Cases □ Condensing Unit Assemblies □ Shelving □ Color Compatibility System □ Store Planning.

NAME _____
ADDRESS _____

Store of Tomorrow Financing --

(Concluded from preceding page) of Sale. File it in the county in which the corporation was incorporated, the county in which the equipment is in, and, in the case of a partnership, or individual, file it in the county where the owner lives.

Payments During First Year More Vital Than Down Payment

The length of payment, in my opinion, isn't as important as the amount of money paid on notes in the first year that the equipment was installed. His greatest depreciation is right off the bat. Most customers will try to get you to take small payments in the beginning and larger payments in the end. If you fall for that trap you are being, in my opinion, very foolish.

We will very often make a deal based upon 25% down, and then have larger notes the first year. We point out to the buyer that he can save on finance charges by going along with those payments. We give him the right, if he can't meet the payments, to extend it to an equal term over three years if he finds it necessary.

Usually, our experience has shown that once he has signed the notes for larger payments the first year, he meets those notes, and you are out from under in the quickest possible time.

When Dealer Gets Two-Thirds of Money He Is Usually on Profit

After you have two-thirds of your money you are usually on profit, and you can give him all the time he wants to pay off the last third as long as he pays the finance charges on it.

Incidentally, we have gone as long as 4½ years on contract pay-outs, but in most cases we had two-thirds of our money within the first two years.

What protection can the distributor look for in selling his equipment?

Firstly, on a term deal, or even a cash sale, get the customer to sign a Conditional Bill

new location, the corporation went bankrupt. We tried to take back our equipment. The attorneys for the creditors objected to our mortgage, claiming we only had a \$7,500 mortgage instead of the \$30,000 that we claimed.

The reason for their claim was that we had only filed for a \$7,500 moving job, rather than the original mortgage. Luckily we won the case in court, but it gave us some anxious moments. That is why we say, always file a complete copy of the original mortgage.

Some time ago we had an experience where we sold a job in one county and had the store close up. The same corporation moved its place of business to another county in the same state. We filed the contract in the new county. However, we only filed the price of the moving job which amounted to \$7,500.

Subsequent to moving to the

(To Be Continued)

Scatena York Moving Into Larger Quarters

SAN FRANCISCO—Plans for moving into new, larger quarters have been revealed by Scatena York Co., northern California distributor of York air conditioning, McCray refrigerated display cases, and other supermarket equipment.

The new combination warehouse and offices, to be located at 225 Industrial St. here, will provide 12,000 sq. ft. of floor space, of which approximately 3,000 sq. ft. will be devoted to offices and display room.

Scheduled for completion about Feb. 1, the modern steel frame structure will provide offices and working areas for 30 employees as well as a display room for the various lines handled by the rapidly-growing business, it was pointed out.

Scatena York has served the

Bay Area for the past 20 years at its present location, 1666 Mission St., under the direction of general partners J. A. and C. J. Scatena.

The company has two main divisions: one is refrigeration contractor to the food and institutional field; the other, wholesale distributor of several lines of commercial and residential heating and air conditioning equipment, commercial ice makers, and supermarket equipment.

Scatena York will occupy the new offices on a long term lease.

Trying to find
the right man for a
hard-to-fill vacancy
the NEWS' Classified
Ads are read by your
man.

Place your ad today!

FOR BOTH R-12 and R-22

Use only one water valve

Penn "All-Range" Water Valve Reduces
Your Inventory



Now, cut your water valve inventory in half! Stock only one model . . . the new Penn 246 "All-Range" water valve . . . it's perfect for both R-12 and R-22 service.

This new model has all the superior features of the Penn 246 . . . no valve chatter; no water hammer; no corrosion of sliding parts; easy manual flushing; highly sensitive yet accurate . . . all features which make it stay on the job longer! Available in $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " sizes.

Ask your wholesaler for Penn . . . the refrigeration industry's favorite water valve.

PENN CONTROLS, INC. Goshen, Indiana
EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

Your Customers'
Best Buy. . .
(and yours, too!)

IDEAL

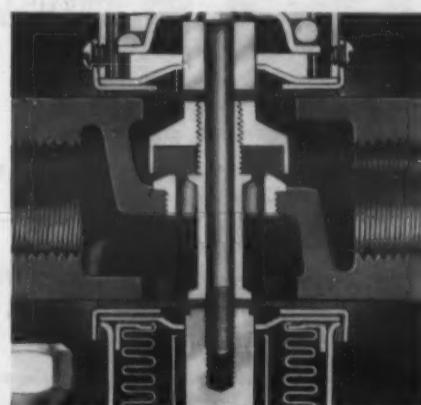
Speed-Freeze

PRODUCTS

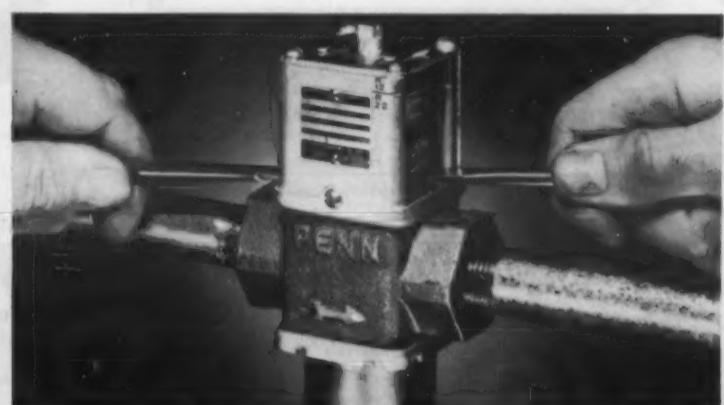
BEVERAGE COOLERS
Unexcelled storage
capacity with
Ice Cube Makers
OUTSTANDING
SECTIONAL METAL
WALK-IN COOLERS

IDEAL

COOLER CORPORATION
2830 MAGAZINE ST.
ST. LOUIS 6, MO.



No rust, corrosion and sedimentation.
Exclusive design keeps water away from
bellows, range spring and sliding parts.



Easy manual flushing after installation . . . 2
screwdrivers, an upward lift and foreign matter
is washed away to assure proper valve seating.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

For more information about products advertised on this page use Information Center, page 20.

**Sets Jan. 27-28 as First
Of 12 2-Day Regional
Product Training Dates**

MINNEAPOLIS—The first of a series of 12 two-day regional product training sessions will be conducted for representatives of McQuay, Inc., it was announced by G. G. Workinger, sales manager.

The first school will be held in Grenada, Miss., Jan. 27-28, at one of McQuay's manufacturing plants. Representatives from Little Rock, Memphis, Nashville, Birmingham, Jackson, New Orleans, and Atlanta will be in attendance.

Willard B. Buck, McQuay manager of field sales, and Alvin R. Flynn, sales manager of heating and air conditioning units, will conduct the sessions and discuss the new modification and additions to McQuay's expanding product lines.

Second of the schools will be held Jan. 31 and Feb. 1 in Daytona Beach, Fla.

Others will be scheduled at a later date.

'Stores Need Year-Round Air Conditioning'

**Sees Refrigerated Shelving for Frozen Foods, Shelving
Accessories, Improved Refrigeration Systems Due Next**

CHICAGO—Next move in the commercial refrigeration industry will be refrigerated shelving for frozen foods, meats, etc., A. B. Biddle, executive vice president of Hussmann Refrigeration, Inc. predicts.

In a talk prepared for delivery at the annual convention of the National Commercial Refrigerator Sales Association here, he said, "it will come in the near future."

Some of the biggest changes in equipment for the food store of tomorrow, he added, may well be in shelving and other non-food displays.

**'SHELVING IS
IMPROVING DISPLAYS'**

"Shelving accessories, each adapted to a specific product need as developed in the past five years, are already transforming and improving displays more than many of us realize."

Biddle asserted that the store of tomorrow, whether large, medium, or small, will certainly need a year-round heating and air conditioning system.

**'AIR-COOLED UNITS
GAINING FAVOR'**

"There will be much improvement in the refrigeration systems employed to take care of perishable foods. Air-cooled refrigeration systems are gaining in acceptance because of the difficult problems of water-cooled systems, due to water shortages, water costs, sewage disposal costs, water conditions, etc.

"Total percentage of floor space occupied by refrigerated equipment probably will not increase too much as compared to the amount of space occupied by non-perishable display equipment. But it is believed that a good part of the store's equipment will continue to be refrigerated for at least the next 20 years.

"Space and the proper utilization of it will continue to be one of the major problems in tomorrow's store, regardless of size.

"Refrigerated shelving for dairy, delicatessen, and other perishable items, which increased product capacity at least 25% per sq. ft. of floor space used and provided better merchandising and easier stocking, is one excellent example of progress in that direction.

"Check-out efficiency will be greatly improved. Perhaps it will evolve slowly into a completely automatic, efficient operation which we are unable to visualize today. But the need exists for automation in bagging and sacking the customer's order. It must be a simple, practical system which really works.

"In-store processing will continue to be an important part of

the good store's operation. There will be a steady growth towards pre-packaged meats, delicatessen, dairy, and produce.

"Some of it will be done centrally, but much of this processing will continue to be done at store level for some time. The demand will grow for more walk-in coolers of all types and refrigerated processing rooms.

"Wrapping and packaging machines will grow in use along with all other processing and back-room equipment."

Biddle indicated that all these developments provide a real opportunity for the distributor and the salesman who will train and really fit himself to take advantage of it.

SPECIALIST'S JOB

"Proper selection of food store equipment will become even more of a specialist's job than it is today," he predicted.

"Equipment will become even more sectional, with greater choice of accessory items, than it is today.

"Proper selection of equipment to fit budget and merchandising requirements will be dependent upon the store engineer's full and detailed knowledge of equipment; how various parts and sections go together to form different combinations to meet each given need.

"An equipment distributor, specializing in equipment, will be needed more than ever by the small chain operator, the wholesale grocer, and other independent retailers—to even intelligently write and place an order.

"Well-experienced, well-equipped distributors will also continue to be needed to coordinate and economically handle equipment application engineering, freight, drayage, installation, and service.

"Changes and improvements will come in food store equipment. We must make sure that

we, as individuals, also change as need requires to keep pace with changing products, changing technical aspects, and changing service conditions."

Biddle also declared that "many dollars must be spent in research to help make the right decisions to guide us in building the right equipment to get the job done. Many more dollars and much time must be spent in selecting, training, and supervising the personnel necessary to do the job."

**Pamphlet Describes 15
Models In Firm's '58 Line**

HUDSON, Wis.—The 1958 line of commercial refrigeration equipment from Nor-Lake, Inc. is displayed in a newly-published catalog insert.

Fifteen models of the company's coolers, refrigerators, freezers, and ice making equipment are pictured and described in the four-page pamphlet.

Gloekler

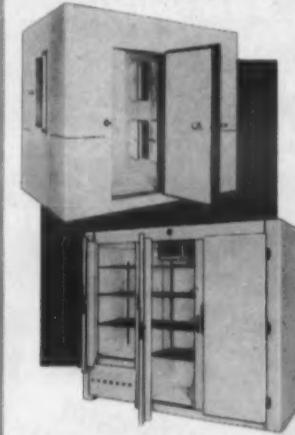
**A FAMOUS NAME IN
COMMERCIAL
REFRIGERATION
FOR OVER 50 YEARS!**

As a pioneer designer and builder of commercial refrigerators, with more than 50 years of experience, Gloekler offers these important advantages:

1. Your customers get the finest construction materials and design plus the all-important benefits the industry's most advanced skills and facilities can offer.

2. To you, as a Gloekler dealer you are protected on every transaction in your area, and get conscientious factory cooperation in maintaining good customer relations.

**WALK-IN & REACH-IN
Standard and Custom Designs
for Every Need!**



**COMPETITIVELY PRICED
BACKED BY
WRITTEN WARRANTY**

**DEPENDABLE, ECONOMICAL
PRODUCT COOLING***

**Ice-Cel
ACCUMULATORS**

- FOR DAIRIES
- CREAMERIES
- BAKERIES
- CONFECTIONERS

* Stored cooling capacity
for high peak chilling requirements.

LOW INITIAL INVESTMENT • LOW OPERATING COSTS

DOLE REFRIGERATING COMPANY
5920 NORTH PULASKI ROAD, CHICAGO 30, ILLINOIS
103 PARK AVENUE, NEW YORK 17, N. Y.

In Canada: Dole Refrigerating Products Limited, 44 Elgin St., Brantford, Ont.

Write for Engineering Catalog BPE.



**THE STORAGE BATTERY
OF REFRIGERATION"**

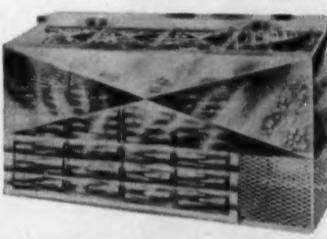
Gloekler
P.O. Box 1154-AC
ERIE, PA.

"A CASE OF COOL JUDGMENT"

**FLO-COLD
DRINKMASTER
STAINLESS STEEL
CUBER—COOLER.**
SOLD THRU DEALERS ONLY
WRITE

**United Frigulator Engrs.
MENOMINEE, MICH.**

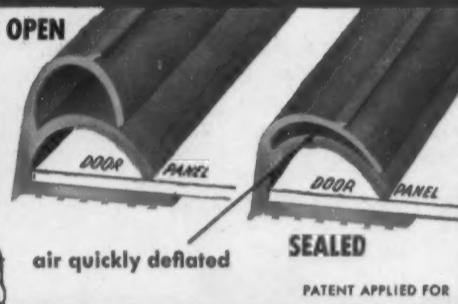
AVAILABLE IN SIZES 4 to 10 FT.



*a light touch**
AND IT'S **SEALED!**

Jarrow's Safeseal Gasket...

developed for the new safety-type spring and magnetic refrigerator and freezer doors.



* as low as 4 lbs. pressure



Positive seal is assured with as low as 4 lbs. pressure because "Safeseal's" soft-acting rubber is sensitive to the lightest touch.

"Safeseal" can be made to your exact requirements for any low-tension spring or magnetic door, based on this patented design. Send us blueprints of your doors.

Jarrow experienced engineers can help solve your every gasket problem. No cost or obligation for this service. Write today.

JARROW PRODUCTS INC.
Door Gasket Specialists for Nearly a Third of a Century
420 NORTH LA SALLE STREET • CHICAGO 10, ILL.

For more information about products advertised on this page use Information Center, page 20.

Near Agreement on New 3-A Sanitary Standard, Proposed Amendment

EAST LANSING, Mich. — Eight proposed 3-A Sanitary Standards for dairy equipment and an amendment of an existing 3-A Sanitary Standard were on the agenda at the regular semiannual meeting of the 3-A Sanitary Standards Committees held recently at the Kellogg Center of Michigan State university here.

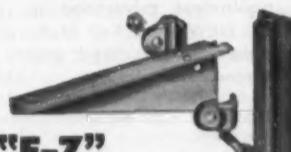
Officials report that near-final agreement was reached on one of the eight proposed standards and on the amendment to an existing 3-A Sanitary Standard and that these two will probably be published as official 3-A Sanitary Standards before the next regular meeting of the 3-A groups in late spring. These two are the tentative 3-A Sanitary Standard on Milking Machines and an amendment to the existing 3-A Sanitary Standards for Pumps for Milk and Milk Products.

Conferees also considered standards for or amendments to existing standards for the following seven items: ice cream freezers; automatic bulk fluid milk vending machines; rubber and rubber-like materials; farm holding tanks; methods and equipment for supplying air under pressure in milk processing; plastics materials; and cleaned-in-place pipelines for farms.

Operating Costs of Residential Air Conditioning and What This Means to Dealers and Installers. By R. A. Gonzales—25¢ each. Get your copy. Mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.

WILL SHELVING HELP YOUR SALES?

"Get the E-Z Story"



"E-Z" SHELVING GIVES PIN-POINT ADJUSTABILITY

"E-Z" BRACKETS & STANDARDS Provides These Advantages

- (1) Helps solve Uneven Floor Problem. Upper Shelves Adjust Level without shimming.
- (2) Helps Solve Odd Package Sizes. Permits vertical spacing to fraction of inch.
- (3) Provides rugged "back-bone" for many shelving requirements.
- (4) Readily Adapted to Precision Tailored Fixtures.

NO KEYHOLES OR SLOTS

Brackets slide up and down in Standard groove and lock at any point on Standard.

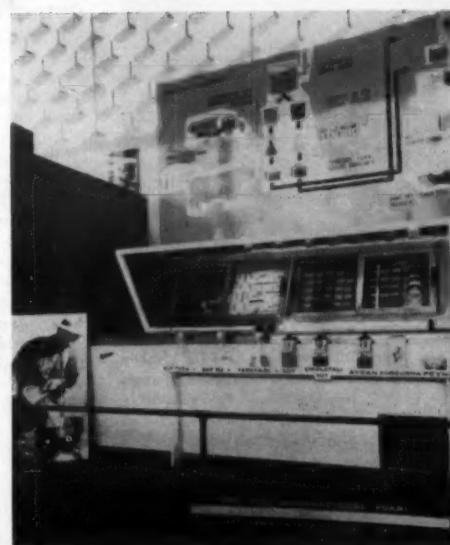
HANDLES ALL NORMAL DISPLAY LOADS

Write for Free Folder

Standard Steel Works, Inc.
DEPT. AC-12, NORTH KANSAS CITY, MO.

Display Cases 'Thrill' Visitors at 2 Foreign Exhibits

A GROUP of Coldin Cabinet Co., Inc. showcases was selected by the Commerce Dept. to be displayed at the recent 26th International Fair in Izmir, Turkey. It is reported over 950,000 visitors jammed the exposition, "thrilled" by U.S. displays of foods and freezers. This is a Coldin dairy merchandiser.



PROMINENTLY featured in the Eislink Co. booth at a food equipment exposition in Cologne, West Germany recently was this McCray Refrigerator Co., Inc. equipment. Carrying Eislink nameplates, McCray models are said to have created much interest and favorable comment. Eislink was recently licensed to make products of McCray design for distribution in Europe. All self-service, these McCray cases included an adjustable shelf dairy case, a double-duty meat case with front storage, a frozen food case, a self-contained model for ice cream, and a self-contained island merchandiser.

TALK ABOUT

Capacity! *

SEE THAT 16" DEPTH!



It's a standard feature—not special—in all McCray top display meat merchandisers!

Load to the full 16-inch depth—this McCray case is a *volume merchandiser*! Holds enough stock *under refrigeration* to serve during heaviest shopping periods without frequent reloading. Yet adjustable shelves make McCray meat cases readily adaptable to the need of the hour in your store.

Big capacity... sales-making display... easy

shopping features... dependable, low-cost operation! These are factors which make McCray cases first choice among more and more of the big volume merchandisers throughout the nation.

Distributors are cashing in on the rapidly increasing demand for McCray features. Some territory is available. If your area is open we'll gladly supply franchise information.

McCray Refrigerator Company, 101 McCray St., Kendallville, Ind.

Designed to SELL MORE... Engineered to SAVE MORE

McCray

For more information about products advertised on this page use Information Center, page 20.



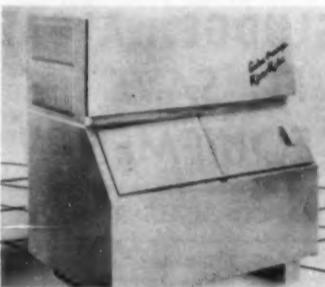
Washing Machine Has No Tub of Its Own

KEY NO. H-146

GRAND RAPIDS, Mich.—A washing machine light enough to be carried in one hand and needs no tub of its own, has been introduced by AMI Inc.

Principle of the new AMI tubless washer turns any convenient container—sink, tub, wash basin, laundry tub, or even a large pail—into a full-fledged washing machine.

Just over a foot high, the unit weighs 9 lbs., stands on suction cups in tub or sink and completes a 4-lb. wash in seven to 10 minutes, anywhere electricity is available.



Adds 'Inverted Rain' Method Ice Maker

KEY NO. H-147

CHICAGO—Cold Corp. of America recently introduced new "Cube Freeze-Kleer Kube" automatic ice maker.

It is claimed to employ a new method of ice cube making called "Inverted Rain" which assures maximum in purity and quality.

Continuously filtered water is sprayed gently upward against a refrigerated upside-down ice cube mold. Because the impurities in water freeze too slowly, they fall immediately into a drip tray to be filtered or purged. Thus, only the purest water is frozen into Cube Freeze-Kleer Kubes. The Inverted Rain method of ice making completely aerates the water and removes unwanted chlorine and other odorous gases.

It is so designed that as many head units as needed can be easily installed and adapted to increase production.

Cube Freeze-Kleer Kube automatic ice cube machine is available in two sizes, producing 200 lbs. or 400 lbs. of solid cubes in every 24 hours.



Announces Solvent Vapor Degreaser

KEY NO. H-148

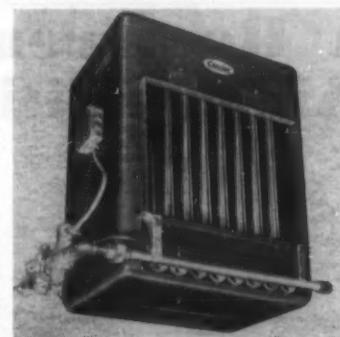
DUMONT, N. J.—Development of a new low-cost solvent vapor degreaser was announced by Tect, Inc. here.

Eliminating the fire hazard of gasoline, naphtha, and mineral spirits, the unit is described as model 10. Machine is constructed of 14 gauge steel with a heavy zinc coating and is heated with a Chromalox 1250 w. element which may be connected to a 115 v. outlet.

A stainless steel coil maintains the vapors of the chlorinated solvent at the proper level. A work rest and a light-weight, galvanized steel basket are also provided—an "on-off" switch and a thermometer. The bottom is insulated with asbestos and fiberglass.

SYRACUSE, N. Y.—Simpler installation in less space is a claimed feature in a new line of AGA approved gas-fired duct furnaces announced by Carrier Corp.

Compactness of the units makes them adaptable for heating in conjunction with air conditioning in low ceiling structures.



Duct Furnace Easy To Install

KEY NO. H-149

INDIANAPOLIS—A new 16-cu. ft., top opening, mechanically operated, self-contained explosion proof low temperature environmental chamber is claimed to offer a temperature range from ambient to -130 ° F., has been announced by Webber Corp.

40-Lb. Dehumidifier Features Portability

KEY NO. H-1410

JACKSON, Mich.—A low-cost satellite electric dehumidifier, called "Comfort-Aire," was recently introduced here by Heat Controller, Inc.

This 1/2-hp. unit has spiral aluminum evaporator, is portable, weighs 40 lbs., can be placed over basement floor drain or hung between joists to drip into laundry tub or other receptacle.

Model DHL-10 has five-year warranty, four-blade, single-piece fan of 8-in. diameter and 180 c.f.m. Cabinet is 20-gauge furniture steel

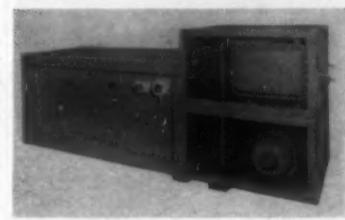
with baked enamel finish with over-all dimensions of 18 by 14 by 14 in. It is claimed to control an area of up to 10,000 cu. ft.

Offers Explosion-Proof Test Chamber

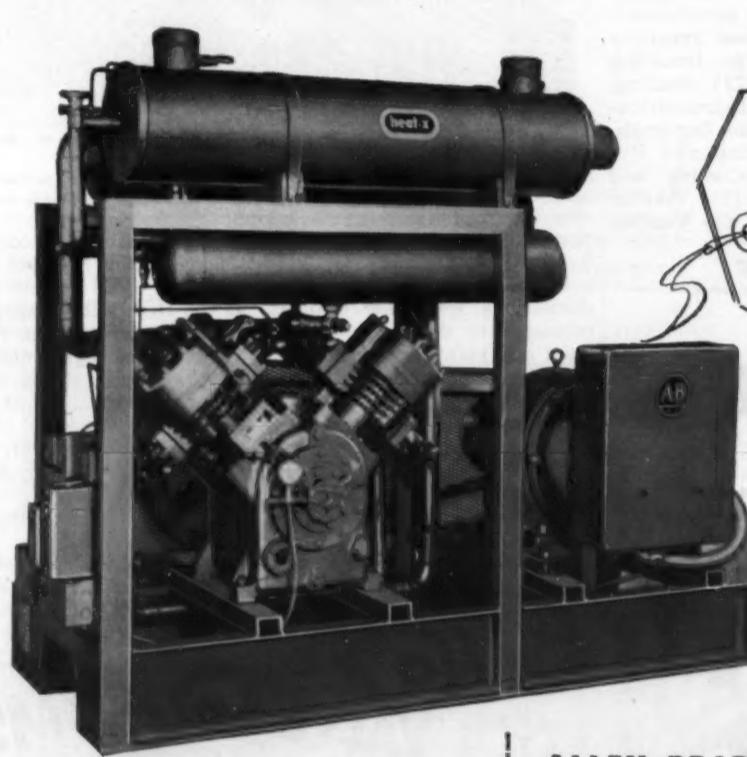
KEY NO. H-1411

INDIANAPOLIS—A new 16-cu. ft., top opening, mechanically operated, self-contained explosion proof low temperature environmental chamber is claimed to offer a temperature range from ambient to -130 ° F., has been announced by Webber Corp.

Unit utilizes a minimum of space.



"Your guarantee of trouble free operation"



HEAT-X
factory equipped with
ALLEN-BRADLEY
MOTOR CONTROL



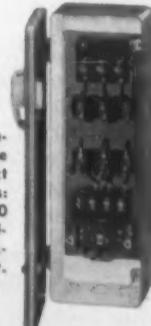
Heat-X, 50-ton packaged water chiller uses Allen-Bradley Bulletin 736, two-step, part-winding starter, rated 60 hp, 220 v. Bulletin 736 starters are made in ratings to 600 hp, 220 v; 1200 hp, 440-550 v.

ALLEN-BRADLEY QUALITY CONTROLS

FOR AIR CONDITIONING AND REFRIGERATION



Bulletin 709 across-the-line solenoid starter. 8 sizes. Max ratings: 300 hp, 220 v; 600 hp, 440-550 v.



Bulletin 712 combination starter. Visible contact disconnect switch. Max ratings: 100 hp, 220 v; 200 hp, 550 v. Also available with ITE breakers for disconnect. See Bulletin 713.



Bulletin 800, two-in-one, selector switch. Quick change for 2- or 3-position operation. Also available with pilot light.



Bulletin 836 pressure control in NEMA Type 4 waterproof enclosure.

Air Distribution Requirements In Year-Round Air Conditioning

11. Fundamentals of Conditioned Air (Cont.)

By Frank D. Klein, Chief Engineer, Govenair Corp.

Frank Klein has been associated with the air conditioning and refrigeration industry for over 20 years. An engineering graduate of the University of Michigan, he has held executive positions with a number of leading manufacturers.



How do we as engineers then, predetermine the "quality" of the air from the standpoint of the air to be conditioned as well as the ultimate desired quality? Throughout our previous discussion we have been investigating the psychrometric properties of air; as a result we must now learn to establish the conditions of air on the basis of a given quality.

This we do by the Psychrometric Chart.

In Fig. 6 an example is carried out on a blank chart provided by the Education Div. of The Trane Co.

The air conditioning engineer, in designing for year-round comfort, is faced with many psychrometric and aerodynamic problems. These most generally fall in the problems involving the processes of (1) Heating, (2) Cooling, (3) Dehumidification, (4) Heating and Dehumidification, (5) Heating and Humidification, (6) Cooling and Dehumidification, (7) Cooling and Humidification (8) Ventila-

tion and Abstraction of Physical Substances.

If we review our previous discussions we know that air atmospheres can be heated to most any point, and their Dewpoint will remain constant as long as water does not enter the cycle. In effect we are talking of adding sensible heat; in actuality we are talking of the Dry Bulb temperature.

Refer to the sample Psychrometric Chart in Fig. 6. At the right hand side of the chart is the Dewpoint Temperature. The fact that the line is horizontal to the vertical Dry Bulb Temperature at the bottom of the chart clarifies the fact that the Dewpoint CAN remain constant as the Dry Bulb Temperature is varied, as long as the Wet Bulb Temperature represented on the left hand side of the chart remains the same. Yet as the Dry Bulb varies, though the Dewpoint remains constant, the Wet Bulb will vary. For Example:

STEP A

1. Select a Dry Bulb Temperature of 55° F.

2. Select a Dewpoint of 40° F.

It is found that the Wet Bulb Temperature that coincides with these conditions is 47.5° F.



in how many combinations do manufacturers use

SUPER-FLO FILTER-DRIERS?



Available with SAE flare or sweat connections in brass or steel thru 20 tons.

More than 100 manufacturers specify Super-Flo Filter-Driers as original equipment, often combined with some other Remco component.

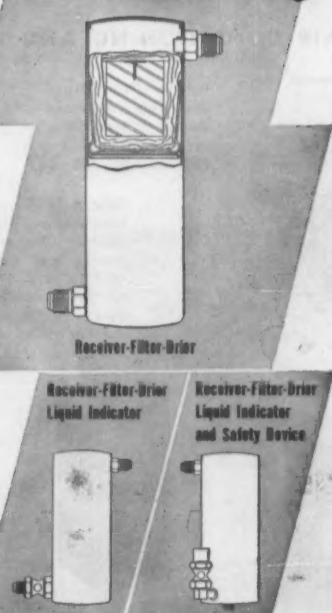
The manufacturer rush to Remco Super-Flo began as a result of . . . low cost . . . massive depth filtering to remove foreign particles . . . peak drying efficiency at liquid line temperatures through 150°F . . . acid control . . . and no measurable pressure drop!

The U/L approved steel shell makes a fine receiver. With it can be combined a Remco Liquid Indicator . . . Check Valve . . . or Safety Device.

All Super-Flo Filter-Driers and combinations are tested, dehydrated and moisture-vapor sealed for your protection. Write for low net prices and Bulletin R-11 for details.

AVAILABLE TO THE TRADE THRU WHOLESALERS EVERYWHERE

REMOCO INC.
ZELIENOPLE, PA.



✓ STANDARD

For more information about products advertised on this page use Information Center, page 20.

STEP B

1. Raise the Dry Bulb Temperature to 80° F.
2. Retain the 40° Dewpoint. It is found that the Wet Bulb Temperature is now 58° F.

In the Cooling Cycle, where the design must be pointed toward heat removal, and if we consider the cycle only from the standpoint of controlling Sensible Heat (where no condensation takes place in the change) we can reverse the figures of the above example and make Step B, be the initial conditions of the air atmosphere to be conditioned and Step A, the ultimate result desired.

Heating systems have humidifying equipment, where moisture may be sprayed into the discharge air stream prior to entry into a confined space, offer the feature of heating and humidification. These features are very desirable in climates

(Continued on next page)

BLAST
SCALE...SLIME...
SLUDGE...ALGAE
but **SAVE the EQUIPMENT!!**

VAPCO SCALE REMOVER

The safe, inhibited, activated acid cleaner in powder form, which also contains an algicide for prompt, positive cleaning under the most severe conditions. 10 and 50 lb. containers, with "TEL-ACTION" pH indicator inside.

VAPCO-HIB

acid inhibitor . . .

A must for those who prefer to "make their own" cleaner with liquid acids. VAPCO-HIB added to acid inhibits it without effecting its efficiency and provides outstanding protection to metals including GALVANIZE. Ask for VAPCO-HIB by name. 8 and 32 oz. bottles and bulk.

VAPCO-PHOS NUGGETS

Keep your jobs clean! For complete protection against recurrence of scale, rust, corrosion, algae and slime. Nuggets dissolve uniformly and slowly for long-term protection. Safe because NUGGETS are FOOD PURE! 10, 50 and 100 pound fiber drums.

VAPCO SLIME-X . . .

Here is the easiest and most economical way to remove and prevent algae and slime formation. Just one ounce to ten gallons of water does it. Cannot harm any part of the system. 10 ounce cans and 25 pound drums.

Also:

VAPCO ICE MACHINE CLEANER—FOOD GRADE safely and quickly cleans all makes of cube-flake ice machines. 8 ounce bottles and 200 pound drums.

Complete literature on request or see your dealer TODAY!



Air Distribution--

(Continued from preceding page) where low atmospheric moisture contents exist initially to provide outside air to heated air stream, by design or infiltration.

Usually in a process of this kind the moisture, added by spray, is kept close to the desired confined space temperature prior to adding to the discharge air stream in order not to lower the discharge air temperature excessively, and yet be low enough that its temperature in comparison to the air stream temperature is such that the higher temperature air stream because of its sensible heat will absorb it.

In such a process the Wet Bulb Temperature is affected. Consider Step A in the previous example. The initial conditions were: DB—55° F.; DP—40° F.; and WB—47.5° F. Let us say that enough heat-moisture is entrained by spray into this air stream to raise the WB Temperature to 60° F. By consulting the Psychrometric Chart it will be found that the Dry Bulb Temperature will be raised to 60° and the Dewpoint to 60°.

Not a Straight Line Function

This function between the initial Dry Bulb and the ultimate Wet Bulb must not be considered a straight line function, for the condition of the air being discharged will vary in Wet Bulb characteristics depending on the entire efficiency of the humidification equipment.

A graphic understanding of this transfer of moisture heat to air in humidification may be illustrated by directing a small Butane or Propane Torch and its flame toward a piece of white or blue Blotting Paper. The sensible heat from the flame will immediately scorch the paper from its color to brown with no other distinguishing effect.

Now entrain in the tip of the flame moisture introduced from an atomizer or some similar atomizing or spray apparatus, and it will be noted that it takes much longer for the flame to char the blotter. Furthermore,

as you increase the amount of moisture into the heat stream, steam forms to deposit moisture momentarily in a ring on the blotter surrounding the perimeter of the flame heat.

Illustrations

Other illustrations are to take two small electric hot plates and turn them on. Arrange to hold over each plate (1) a blotter soaked with water at a distance of approximately 4 inches, and (2) a perfectly dry blotter at the same distance. Above each blotter arrange a method of holding a small pocket mirror. Notice how the moisture or steam collects on the mirror above the wetted blotter and that no moisture collects on that above the dry blotter. In effect therefore the Wet Bulb condition of the air emitting above the wetted blotter has been changed from that state below the blotter.

(To Be Continued)

SLANTS ON SERVICE

"Slants on Service" is a "package" devised by the NEWS to meet the needs of busy servicemen and contractors.

Diagnosing, Checking Weak Start Capacitor

Weak or inoperative starting capacitors often are the real cause of a motor-compressor's failure to start, but all too often the serviceman will blame the relay or the compressor itself. In fact, perfectly good motor-compressor units have been returned to the factory when the problem was in the capacitor, not the compressor.

If a compressor tries to start but only turns slowly, or just hums, or cycles on the overload protector, it might be well to check the starting capacitor first.

An inoperative starting capacitor can be checked rather

easily by momentarily touching its leads to the two line wires and then to each other. If there is no spark, the capacitor has failed. However, the mere presence of a spark does not necessarily mean the capacitor is okay. A weak capacitor will still produce a spark. Therefore, a more accurate check is advisable.

(By the way, never touch a 115-volt capacitor to a 230-volt line. A 230-volt or higher capacitor can be checked on a 115-volt line, though. It would be a good idea, too, to place the capacitor in an enclosure with only the two leads extending to the outside. This will protect the serviceman in case the capacitor explodes.)

Whether a capacitor is weak or not can be determined by a check of its amperage. Attach the capacitor leads across the line and measure the amperage as the current is flowing through the capacitor. At same time measure the voltage across the line.

These checks must be made very quickly because if the capacitor is left on the line more than a few seconds, it will burn out.

The microfarad rating of the capacitor is determined from the observed voltage and amperage readings with the following simple equation:

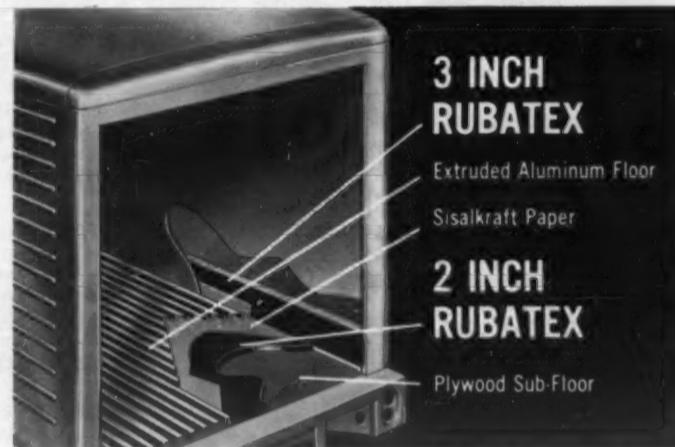
$$\text{amperage} \times 2,650 = \text{m.f.d.}$$

voltage

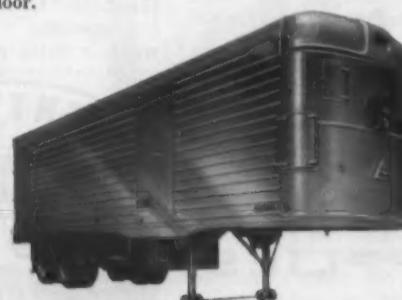
If the m.f.d. of the capacitor falls well below the rating stamped on the capacitor, it should be replaced with a properly rated capacitor in good condition.

Dorsey uses Rubatex—the best insulation money can buy

RUBATEX cargo-protecting flooring insulation will prove that under the most extreme conditions your refrigerated trailer will hold constant desired temperature—will hold cost and weight down—will increase inside space and payload capacity. Proof enough that RUBATEX INSULATION HARDBOARD is the best flooring insulation money can buy?



Rubatex Insulation Hardboard is easy to install—less labor cost in elimination of furring strips because Rubatex has enough structural strength to support extruded aluminum floor.



"RUBATEX IS STANDARD FLOOR INSULATION on our new REEFERATOR . . . gives us MAXIMUM INSULATION in bottom plus MORE CUBIC CARGO SPACE . . . its load-supporting, zero moisture pick-up properties ELIMINATE CONSIDERABLE WEIGHT IN FLOOR AND SUB-FLOOR CONSTRUCTION."

Dorsey Trailers, Inc.

You get peak performance with Rubatex—here's why:

- Lowest heat conductivity of any known structural material (K factor 0.21)
- Compressive strength (60 p. s. i.) strong enough to support floor alone
- Extremely light in weight (4½ p. c. f.)

RUBATEX
INSULATION HARDBOARD

Send for Free Samples and Data Sheets

RUBATEX DIVISION, Dept. AC-2
GREAT AMERICAN INDUSTRIES, INC.
Bedford, Virginia



For full details and sample of Rubatex Insulation Hardboard—print your name in space below, attach to your company letterhead and mail to us.

Name _____

Choice territories now available for sales representation. Inquiries invited.

For more information about products advertised on this page use Information Center, page 20.

BASIC CHEMISTRY*(As Applied In Refrigeration)***Part 8—Refrigerant Breakdown (Conclusion)**

By Frank J. Versagi

We have concentrated our discussion on hydrochloric acid. Basically, the same types of reactions occur with the hydrofluoric acid formed during hydrolysis. In any event, we can be sure that if we find extensive chlorides in a system, there will also be fluorides, the chemical salts of hydrofluoric acid.

The remaining substance formed when refrigerants hy-

drolize is carbon dioxide, a gas. If we really had $\frac{1}{3}$ of an ounce of this gas in our unit, we'd have immediate trouble with high head pressures, of course, for carbon dioxide is a non-condensable. And, together with any hydrogen formed by the reaction of acid on metal, the carbon dioxide would tend to travel through the system to the condenser and receiver.

But non-condensables can be purged and eliminated without too much difficulty. In practice, however, the amounts of carbon dioxide and hydrogen generated should be in such small amounts as to be insignificant.

Under certain conditions, you will recall, it is possible for intermediate hydrocarbons to form when refrigerants break down. These, for the most part, will travel through the unit with the refrigerant, and act like it from the chemical point of view. Excessive amounts of them might change the equilibrium characteristics of the refrigerant, thus altering its cooling efficiency.

Refrigerants React With Components

Even if no refrigerant breakdown occurs at all, there is still the possibility of chemical reactions taking place inside an operating system. This is because the refrigerants themselves will react directly with some of the components in the unit. During World War II, for example, repeated warnings were given about converting units to methyl chloride without first making sure that the units contained no aluminum.

The reason for this warning is that methyl chloride, when wet, reacts directly with aluminum to form a highly inflammable gas and a black, gooey sludge.

Practically speaking, there is not the same sort of danger with the "Freon" type refrigerants. While we saw earlier that the halogenated hydrocarbons may break down in contact with the metals in a system, they do not actually react with the metal.

For the most part, then, the common halogenated hydrocarbons neither attack the metals nor are broken down by them.

Possible exceptions to this are magnesium alloys and aluminum alloys containing more than 2% magnesium. These alloys are not recommended where it is likely that much water may be present. In such cases, it is the water and not the refrigerant which corrodes the metal, but the refrigerant will carry the corrosion products through the unit.

If we think about the non-metals in a unit, the first thing that comes to mind is the fact

that halogenated hydrocarbons have a solvent action on natural rubber. To prove this for yourself, and to see what might happen inside a unit, stop a small container of Refrigerant-113 with a rubber stopper—being sure it is secured against whatever pressure the refrigerant will generate. Before a day is over, the stopper will have swollen greatly and softened considerably.

Because of this, natural rubber is not used when it can be avoided—in gasket material or hose connections or any item which might be in actual contact with either liquid or gaseous refrigerant. Instead, neoprene, or one of the other synthetic rubbers is used.

But the issue is somewhat confused by the fact that the halogenated refrigerants seem to forget their convenient family relationship which allows us to predict the behavior of all from the behavior of one. Refrigerant-22, for example will attack some synthetic rubbers more than the other refrigerants. This same refrigerant also has a greater tendency to attack and break down the cellulosic insulating papers used on hermetic windings. (We will discuss Refrigerants 12 and 22 in detail at another time.)

In addition to metals, rubbers, and papers, more and more plastics are finding their way into refrigerating units. Nylon and teflon valve seats, for example, are almost standard in some lines because of their positive closing action. Under normal operating conditions the usual refrigerants have no effect on such plastics.

It is impossible for the refrigeration serviceman to know all of the reactions which might or might not occur with the many mixtures of refrigerants and materials in a unit. The alert serviceman will keep abreast of information supplied by manufacturers and the contemporary information continuously supplied by the trade papers like the NEWS.

Summary

In this series on basic chemistry, we have discussed those principles of chemistry which have a practical bearing on the everyday problems of the refrigeration serviceman.

In addition to being exposed to such technical terms as halogenated hydrocarbons, hydrolysis, and pyrolysis, the serviceman has seen the "why" of some of the things that happen in the field. He should know the foul-smelling gas generated when a little residual refrigerant

vapor in a tube is heated with a torch, for example. And he now has a good idea of why his hands may get irritated when he handles a burnout without gloves.

And the basic information contained in this series will come up repeatedly in future articles as we discuss everything from high temperatures to capacitors.

American Air Filter Opens Office In Detroit

LOUISVILLE, Ky.—American Air Filter Co., Inc. has established a central regional sales office in Detroit.

Located on the 6th floor of the Michigan building, the office is under the supervision of Frank K. Platt, recently named central regional manager for all AAF products. Their central region includes 25 sales offices in 14 cities in seven states.

MICROMET PLATES

... the easiest, least expensive way to inhibit scale formation and protect against corrosion in air conditioning and refrigeration systems. One charge lasts a whole season in most systems. Continuous treatment is introduced into system through use of easily installed feeding bags. Micromet plates are the best way to

STOP SCALE

Micromet plates are one of Calgon's Big 3 cooling water treatment products. It will pay you to use all 3—

CALGON* SCALE REMOVER makes it easy to clean a system quickly and safely. Corrosion inhibitors protect system while in use. Special built-in pH indicator shows how much Scale Remover to use, and helps tell when the system is clean.

CALGON* ALGAECLIDE'S positive action kills algae and slime growths. Periodic addition helps to keep equipment operating efficiently.

SEE YOUR REFRIGERATION WHOLESALER FOR CALGON'S BIG 3

and for these other quality Calgon products:

BANOX* quickly forms a protective film on metal surfaces. Should be used at spring start-up, after acid cleaning, and at shut down.

CALGON GAS LEAK DETECTOR—for fast detection of gas leaks.

CALGON WATERLESS HAND CLEANER—removes grease, dirt, paint, pipe dope quickly and easily. Contains lanolin—leaves hands soft and really clean.

*T.M. Reg. U.S. Pat. Off.

CALGON COMPANY

DIVISION OF HAGAN CHEMICALS & CONTROLS, INC.
HAGAN BUILDING, PITTSBURGH 30, PENNSYLVANIA
DIVISIONS: CALGON COMPANY, HALL LABORATORIES
IN CANADA: HAGAN CORPORATION (CANADA) LIMITED, TORONTO

**DERCO STRAINERS
OF THIS TYPE AS LOW AS
FIVE CENTS EACH**

featuring...
***EXCLUSIVE
ELECTRONIC
INVISIBLE
WELDING
PROCESS**

Dero strainers feature a weld which offers a strainer free of weak spots, burn marks and restrictions. A strainer which makes use of 100% of its filtering surface. Increased production facilities have now made Dero strainers available to every field where none but the very best strainer will do. Dero engineers solicit your inquiries with regards to your strainer needs.

*PAT. PENDING

DEVICES RESEARCH CORP.

1010 EAST 15th STREET, HIALEAH, FLORIDA.

We're Specialists In

Refrigeration

**Air
Conditioning**

**Electric
Motors,
Too!**

PARTS and SUPPLIES

Over 10,000 items...most complete list in the world... carried in stock! You'll find them all in the NEW Harry Alter Dependabook No. 167 for Fall-Winter, 1957-58.

Write on your letterhead for the DEPENDABOOK

The HARRY ALTER CO., Inc.

Chicago 16, Ill. New York 13, N. Y. Dallas 7, Tex. Atlanta 10, Ga.
1717 S. Wabash Ave. 134 Lafayette St. 122 Parkhouse St. 690 Stewart Ave., S.W.

FREE PARKING AND FAST COUNTER SERVICE AT THESE 4 BIG HOUSES

**MIGHTY MITE
THERMAL PROTECTORS**

**FOR
MOTOR
OVERLOAD
PROTECTION**

**MECHANICAL INDUSTRIES
PRODUCTION COMPANY
223 ASH STREET • AKRON, OHIO**



CUSTOM oil furnace, appliance-styled with contrasting silver charcoal and platinum gray colors, has just been introduced by General Electric Co. Compact, the unit can be converted to gas and addition of cooling coil to top offers year-round air conditioning.

G-E's Central System Line --

(Concluded from Page 1, Col. 4) are installing year-round systems on a non-optimal basis for many of the homes they build.

Miller said General Electric this year has brought out a more economical heating and cooling system especially designed for homes selling for less than \$15,000.

The company has announced a new oil furnace, "easily and quickly" convertible to gas. It

is low in height and readily adaptable to air conditioning with a supplementary coil affixed to its top.

A new "Imperial" oil furnace is also introduced featuring appliance-type styling, having square corners and colors of silver charcoal grey contrasting with platinum mist. It carries a ten-year warranty on its heat exchanger.

For Mass Market

Last year G-E introduced "small compact 36,000 and 24,000 B.t.u. self-contained air-cooled whole house air conditioners that are easily installed in some out-of-the-way place," it was noted. "This year the company has introduced an additional 30,000 B.t.u. model especially designed for the mass builder market." All three air conditioners were on display with "unusual, attractively-styled" air diffusers.

System Offers '25% Savings'

An economical system of heating and cooling an average size home, at savings in purchase and installation costs "as much as 25%," was also shown in operation at the G-E booth. This system shows a downflow furnace set on top of an air-cooled 24,000 B.t.u. self-contained cooling unit "readily and inexpensively installed in new homes selling for \$15,000 or less." The same application can be made for larger and more expensive homes using higher capacity units, it was stated.

A new air-handling unit in 3 and 5-ton models was shown for the first time.



...featuring convenience, comfort, quality! A cosmopolitan atmosphere in home-like setting. In the center of all downtown activities. Newly decorated. Ultra modern, comfortable guest rooms... excellent food at moderate prices in our modern coffee shop and cafeteria.

Radio and Television in room. Air Conditioned rooms in season.

**800 ROOMS \$4
WITH BATH from 4**

**GARAGE and PARKING LOT
FREE OVERNIGHT PARKING
FOR REGISTERED GUESTS**

**FAMILY RATES
No Charge for Children
12 and Under —**

*Harry E. Paulsen, General Manager
FACING GRAND CIRCUS PARK*

DETROIT

We Mourn The Loss
of Our
Esteemed Associate

NEWTON L. GOLD

January 16, 1958

COLDIN CABINET COMPANY, INC.

For more information about products advertised on this page use Information Center, page 20.

Norge Tells Utilities Gas Refrigerator Due

CHICAGO—Confirming reports it will make a gas refrigerator, Norge disclosed it currently is testing a new type of unit.

Judson Sayre, president of this Borg-Warner Corp. division, said that Norge had sent a letter to gas utility executives telling them the firm would make a gas refrigerator. He would not say when the refrigerator would be on the market.

"The availability of the appliance, of course, will be contingent on thorough testing by Borg-Warner research and engineering and approval by your own laboratories," Sayre's letter told the gas utilities.

Hussmann Refrigerator Co. Ltd., T. M. Hall Ltd., Ideal Food Service Equipment (Dunham Sheet Metal), John Ingalls Co. Ltd., Keeprite Products Ltd., Aerofin Corp. (Canada) Ltd., Frozenaire Cooler Ltd., Hagan Corp. of Canada.

Edward Milner Co. Ltd., Marley Canadian Ltd., Mueller Ltd., Jas. P. Marsh Corp., Marshall Refrigeration Co. Ltd., Lonergan Coolerator Div., McGraw-Edison Co., McCray Refrigerator Co. Inc., Ontario Refrigeration Enterprises, Pioneer Appliance Service Ltd.

Perrin-Turner Ltd., Penn Controls Ltd., Peninsula Electric Refrigeration, Refrigeration Supplies Co. Ltd., R. & E. Refrigeration and Heating Specialties, Robbins & Myers Co., Refrigerating Specialties, Shipley Co. of Canada Ltd., B. F. Sturtevant Co. of Canada, Sporlan Valve Co., Tyler Refrigerators.

Thermotrol Products Ltd., Universal Cooler Co. Ltd., W. C. Wood & Co. Ltd., Worthington Corp., A. C. Wild & Co. Ltd., Canadian Ice Machine Co. Ltd.

See Upturn --

(Concluded from Page 1, Col. 2) from banks and about 17% will finance their own projects.

The overwhelming majority of NARGUS members will make greater capital investment in their stores in 1958."

Food retailers expect to encounter numerous business problems this year, he added, despite their fairly optimistic outlook. Major problems will be higher overhead and shrinking profit margins, financing store expansion, sharper competition for the consumer dollar, below cost selling, and obtaining men.

Canadian Show --

(Concluded from Page 1, Col. 3) on Saturday, Feb. 8 through Monday, Feb. 10. Show hours are from 10 a.m. to 6 p.m. on Monday, Feb. 10, 10 to 10 on Tuesday, and 10 a.m. to 8 p.m. Feb. 12.

Following opening ceremonies and reports, RSES program provides for a technical session Saturday afternoon, Feb. 8 with a get-together that evening.

Technical Sessions

Speakers at the first technical session will be E. T. Coles, Penn Controls Ltd., on "Control of Air Conditioning"; Don Rentschler, Sporlan Valve Co., "Refrigerant Distribution"; Parker V. Phillips, Hussmann Refrigerators Ltd., "Installing and Servicing Low Temperature Self-Serve Equipment"; and Dale Bodine, Copeland Refrigeration Corp., "Contaminants in Refrigeration Systems."

Technical session Sunday morning, Feb. 9, will include discussions by Tom Melville, Controls Co. of America, on "Principle and Application of Solenoid Valves"; W. G. Brown, Linde Air Products, "Soldering and Leak Detection with Air and Acetylene Flame"; and W. Bishop, Fiberglas Canada Ltd., "Fiberglas in Low Temperatures."

Commercial members luncheon will hear John R. Merrill, Bendix-Westinghouse Automotive Air Brake Co., Evansville Div., cover "Business Trends."

There will be a technical session that afternoon and election of officers Monday morning, with adjournment at noon. Annual banquet and dance sponsored by the Maple Leaf chapter, RSES, will be the big event on Monday evening at 7:30.

Exhibitors

Exhibitors showing products at the refrigeration and air conditioning show are:

Aluminum Goods Ltd., Air Coils Mfg. Co. Ltd., Automatic Electric Sales (Canada) Ltd., S. A. Armstrong Ltd., Alliance Motors, Anaconda American Brass Ltd.

Bendix-Westinghouse Automotive Air Brake Co., Canadian General Electric Co. Ltd., Controls Co. of America (Canada) Ltd., Carrier Engineering Ltd., Canadian Liquid Air Co. Ltd.

Dunham-Bush (Canada) Ltd., Dole Refrigerating Products Ltd., Davis

Automatic Controls Ltd., Danfoss Mfg. Co., DuPont Canada Ltd., Frigidaire

Products of Canada Ltd., General

Controls Co. (Canada) Ltd., Gilson

Mfg. Co. Ltd., Handy & Harman of Canada Ltd.



**genetron® Super-Dry Refrigerants are available
from wholesalers everywhere!**

when buying

copper or

copper base

alloy tubing

remember

TEMPER

it should

be tuned

to the task!

The right temper for the task can mean the

difference between success or failure, profit or loss. But, relax! Whatever your requirements, specify United seamless copper or copper base alloy tubing. Do so with confidence that the industry's finest quality and production control systems will deliver tubing drawn precisely to your specifications... for temper, size, gauge, grain structure, cleanliness, dimensional precision and cost.

You pay no more for this quality. United tubing, the finest in copper and copper base alloy, is available in coils, straight mill lengths or cut to your specifications.

For full information, write or call United.

UNITED WIRE
AND SUPPLY CORPORATION

PROVIDENCE 5, RHODE ISLAND
COPPER, BRASS, ALUMINUM WIRE AND TUBE... BRAZING ALLOYS... PHOSON... SIL-BOND

Refrigeration Problems And Their Solution (As Written by Paul Reed)

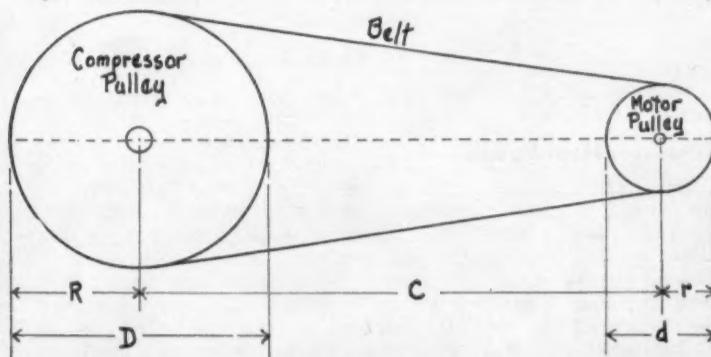


FIG. 1 shows the dimensions needed to calculate the belt length from the diameters of the pulleys and the center distances between pulleys.

Determining Belt Length

A reader sent in a formula for determining the length of a belt if the diameters of the two pulleys and the distance from center to center is known. He was given this formula, and he wishes to know whether it is correct. The formula that he quoted was:

Length of the belt is:

$2 \times (D + d) + 2 \times C$

where D and d are the diameters of the two pulleys respectively, and C is the distance between the centers of the two shafts.

EXAMPLE

For example, let us take two pulleys of 10 and 4-in. diameters, on shafts whose centers are 20 in. apart, as illustrated in Fig. 1. Then if we substitute in the above formula we get:

Length of belt is:

2 times (10 plus 4) plus 2 times 20
or, $2 \times 14 + 2 \times 20$
which equals 68 in. as the belt length.



See the **LENNOX** Ad
IN THE FEBRUARY 3 ISSUE
OF THIS MAGAZINE

- New — Refrigerated "Utility" Compartment
- New — Compact, Functional Designs for Bigger Capacity
- New — Trouble Free System Eliminates Costly Service

Here are coolers that are boosting draft sales right across the country. Big, roomy Beverage-Air Coolers hold up to 3 kegs on tap, 1 on storage and 3 to 4 cases in "Utility Compartment." They offer the best balanced cooling system available—assure low cost cooling from keg to faucet valve. All models with stainless steel tops and stainless or baked enamel sides and ends.

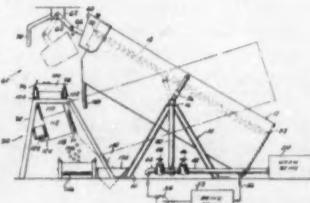
FACTORIES: Punxsutawney, Pa., Spartanburg, S. C. WAREHOUSES: Pittsburgh, Pa.; Trenton, N. J.; Memphis, Tenn.

For more information about products advertised on this page use Information Center, page 20.

PATENTS

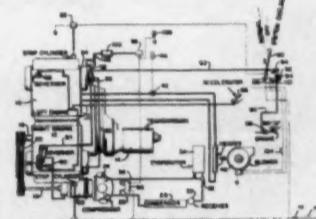
Week of October 22 (Continued)

2,810,268. APPARATUS FOR FREEZING FLUIDS. Henry G. Charlet, Long Beach, Calif.



1. In a cube forming machine, a tank, means pivotally supporting said tank above a transverse axis thereof for pivotal movement of said tank about said axis, a container for receiving material to be frozen mounted in said tank, means for introducing refrigerant into said tank and into contact with said container, said container being open at one end, filler means engageable with the open end of said container for introducing said material into said container when said tank has one end in an upward position, said filler means being movably mounted with respect to said tank, said tank being pivotal to place said one end of said tank in a lower harvesting position, a saw frame mounted adjacent said lower position and having cutting means, said material being movable out of said container when said tank end is in said lower position, said cutting means being movable transversely of said container across said material for cutting the latter.

2,810,269. VEHICLE REFRIGERATING APPARATUS. Hans O. Schjolten, Birmingham, Ala., assignor to General Motors Corp., Detroit.



1. In an air conditioning system for a bus or the like, an engine, a refrigeration system including a refrigerant compressor, a condenser, an evaporator, refrigerant flow connections between said compressor, condenser, and evaporator, and blower means for circulating air to be conditioned in thermal exchange relationship with said evaporator, a variable speed ratio transmission for transmitting power from said engine means to said compressor, means for changing the speed ratio of said transmission, control means for operating said speed ratio changing means, and means operated by movement of said control means to one position for limiting the output of said engine means, said engine means comprising a pair of engines, said means for limiting the output of said engine means comprising means for rendering one of said engines inoperative.

2,810,270. AIR CONDITIONING SYSTEMS FOR VEHICLES. William J. de Beaubien, Birmingham, and Herman S. Kaiser, Pontiac, Mich., and John Ralph Holmes, Lockport, N. Y., assignors to General Motors Corp.

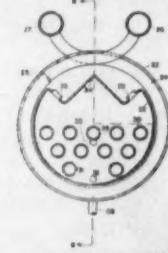


Write for complete catalogue data—FREE.
Ask about Beverage-Air Ice Maker Coolers

BEVERAGE-AIR
705 Third Street Punxsutawney, Penna.

2,810,272. ABSORPTION REFRIGERATION SYSTEM. Everett P. Palmatier, Solvay, N. Y., assignor to Carrier Corp., Syracuse, N. Y.

1. A heat exchanger for an absorption refrigeration system including an outer shell, an inner shell spaced from the outer shell, a coil disposed in the space between the shells, a coil disposed within the inner shell, one of said coils being a condenser coil, the other of said coils being a heating coil.



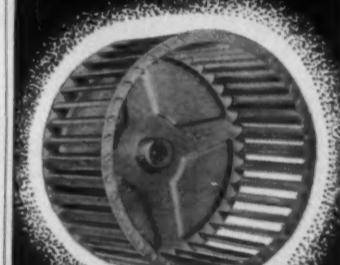
said inner shell being positioned within the confines of the coil disposed within the space between the shells, means for passing a cooling medium through said condenser coil, means for passing a heating medium through the heating coil, means to maintain solution over at least a portion of the heating coil, and means to permit the vapor of the solution to pass from the space containing the heating coil into the space containing the condenser coil.

(To Be Continued)

Whirlpool
CORPORATION

USES

REVCOR
BLASTAIRE
BLOWER WHEELS



because . . . REVCOR'S
RELIABILITY OF
SERVICE HELPS
Whirlpool
TO MAINTAIN
ITS QUALITY!

REVCOR SINGLE AND
DOUBLE INLET
BLASTAIRE BLOWER
WHEELS ARE USED BY
OVER 60% OF THE
ROOM AIR CONDITIONER
MANUFACTURERS!
Write For Technical Details

Revcor INC.
ENGINEERS • MANUFACTURERS
251 EDWARDS STREET
CARPENTERSVILLE, ILLINOIS

Through-the-Wall Central Unit--

(Concluded from Page 1, Col. 4)
tute at Kensington, Md.

The new system consists of a factory-built and sealed air-cooled condensing unit and cooling coil assembled as a complete package. The cooling section inserts through the house wall, directly into the plenum of the furnace, which is installed inside close to the wall. Furnaces and plenums are available for installation immediately.

"Because of the advanced engineering design, installation of the new unit is fast, simple, and extremely economical," Lehman emphasized. "The installed cost will be 30 to 50% lower than conventional equipment of comparable cooling capacity."

Adaptable to Any Warm Air Unit

The new cooling unit package is adaptable for use with any type warm air furnace in houses with or without basements. Insert units with 2 and 3-ton cooling capacities (24,000 and 35,000 B.t.u.) will be built by Frigidaire.

"The summer cooling unit can be installed as a package by the builder, along with a furnace, or added later by the homeowner without costly alteration," it was said.

No Need for Tubing

"Installing the furnace on an outside wall of the house instead of deep in the interior, eliminates the need for lengthy, complicated refrigerant tube connections from the cooling coils to the condensing unit as in conventional systems.

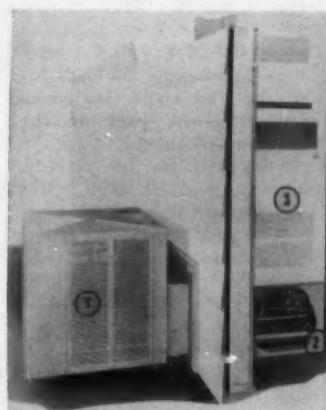
"Because the cooling coils are a part of the condensing unit package that slides through the wall into the furnace, refrigerant tube connections can be made by the manufacturer. This permits the entire cooling unit to come from the factory, sealed and tested, under controlled conditions, providing freedom from dirt and moisture in the refrigerant system. Electrical connections are simplified, and extra metal ductwork and dampers are eliminated.

"And the homeowner can add the cooling equipment long after the furnace and heating system are installed, without making expensive structural alterations. In this case, the builder would construct the opening in the wall, lined up with the furnace plenum, ready for the through-the-wall installation of the refrigeration package later on. Plywood panels and insulation can be used to close the opening until such time as the cooling equipment is installed."

Coils Inserted Through Wall

To install the cooling equipment, the coils are inserted through an opening in the wall and into the plenum under or above the furnace, depending upon the type. The air-cooled condensing unit remains outside, supported by a steel wall bracket of heavier construction but similar to those used for regular window type room air conditioners. If desired, a concrete slab can support the unit.

The condensing unit and cooling coil package weighs less than 350 lbs., so it can be handled and installed by two men, using ordinary tools.



NEW Frigidaire-designed air conditioner installs through the wall of house. The 2-ton air-cooled condensing unit and cooling coils make up a factory-assembled cooling package. Condensing unit (1) remains outside the house as cooling coils (2) slide through wall into furnace plenum. Furnace (3) is mounted on plenum.

New Cooling Products Offered at Show-

(Concluded from Page 1, Col. 5)
with stainless steel finish on one side and copper finish on the other.

New heat pumps were much in evidence at the exposition and attracted considerable interest among the home builders, according to some exhibitors.

More flexible residential heating and cooling systems and "through the wall" types that put the furnace and cooling coil next to the basement wall to shorten refrigerant lines were other innovations.

Place Emphasis On Sales Aids

Some manufacturers placed emphasis on sales aids to help builders and their salesmen sell the heating and cooling plants in their homes.

In a press conference early in the convention, retiring NAHB

President George S. Goodyear hailed the Federal Housing Administration's recent decision to encourage air conditioning by relaxing its buyer qualifications.

"It will let us sell air conditioning to many buyers who want it but could not, in the past, meet the FHA's qualifications," he declared.

Discusses Heat Pumps

Only talk devoted to air conditioning on the convention program was a discussion of heat pumps by William McGrath, Carrier Corp. engineer and chairman of the heat pump committee of Air-Conditioning & Refrigeration Institute.

He told builders that heat pumps were definitely feasible for heating and cooling homes at competitive costs particularly in the southern and west coast areas.

At a session on heating, a builder in the audience advised warm air and hydronics (hot water) heating equipment manufacturers to stop fighting over which type was the cheapest to install, but to concentrate on telling what they can do for the builders.

Optimism Voiced

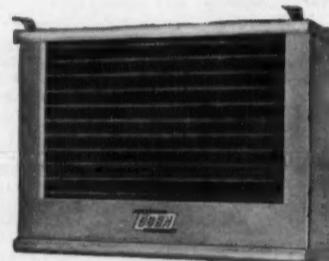
Two air conditioning manufacturers exhibiting at the exposition, declared that they were optimistic about sales for 1958. One, Jim Norris, president of Lennox Industries, Inc., predicted a 35% increase for the year.

Signs today are much more favorable than they were even two months ago, according to H. P. Mueller, Jr., vice president in charge of sales for Mueller Climatrol.

"We have found a definite optimism among dealers that hasn't been present in the last 12 to 16 months," he declared.

BOHN Presents

the NEW ANGLE in Low Temperature Units with Vapor Hermetic Defrost



Model LC Unit Cooler for large walk-ins and low temperature storage. Rating from 600 through 1800 BTU per hr. at 1°T.D.



Model LR Reach-in Cooler for small applications. Ratings from 100 through 190 BTU per hr. at 1°T.D.

Extensive Bohn engineering research has led the way to a new idea . . . a defrost system that's unique in simplicity. A hermetically sealed vapor electric heating system is built within the coil. Heated vapor circulates by gravity, eliminating expensive flow control devices.

This system removes uncertainties and variables. It is not necessary to penetrate the frost barrier. Extra piping and complicated installation problems are avoided.

Features include an adjustable defrost time clock, heating pad in drain pan and temperature terminated switch. Easily-accessible, cartridge type heater elements in hermetic system eliminate leak tests.

Write today for full details. Reserve your free copy of Bohn CATALOG BU-1.

Model LM Mullion Lo-Temp for upright freezers. Ratings of 140 and 190 BTU per hr. at 1°T.D.



Manufacturers of Commercial
Refrigeration, Industrial Air
Conditioning and Special Heat
Transfer Surfaces

BOHN ALUMINUM & BRASS CORPORATION • BETZ DIVISION • DANVILLE, ILLINOIS

For more information about products advertised on this page use Information Center, page 20.